PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 7 IN SET 201

Philco Models 53-T1824, 53-T1825, 53-T1826, 53-T1852, F, L, 53-T1854, L, 53-T2124, L, 53-T2125, L, 53-T2126, 53-T2152, L, 53-T2226, 53-T2227 (Code 123), 53-T2225, L (Codes 123 & 133), 53-T2260, 53-T2262, 53-T2264 and 53-T2274, L (Code 123) (RF-IF Ch. 81, Defl. Ch. H-1) are covered in Photofact Folder 7, Set 201.

Several new models have now been added. A chart is given below, which shows the model numbers, with the chassis, UHF tuner and picture tube, used in each.

MODEL NO.	CODE	RF CH.	DEFL.CH.	UHF TUNER	CRT
A-T1814	123	81	H-1		17YP4
A-T1816, L	123	81	H-1		17YP4
A-T1817, HM	123	81	H-1		17YP4
A-T1856, HM, L, W	123	81	H-1		17YP4
A-T2230, L	123	81	H-1		21EP4A
A-T2232	123	81	H-1		21EP4A
A-T2262HM	123	81	H-1		21EP4A
A-T2272, L	123	81	H-1		21EP4A
A-T2274, W	123	81	H-1		21EP4A
A-T2277, L	123	81	H-1		21EP4A
A-T2279	123	81	H-1		21EP4A
A-T2288, HM	123	81	H-1		21EP4A
A-UT1816, L	123	81	H-1	UT21B	17YP4
A-UT1817	123	81	H-1	UT21B	17YP4
A-UT1856, HM, L, W	123	81	H-1	UT21B	17YP4
A-UT2230	123	81	H-1	UT21B	21EP4A
A-UT2232	123	81	H-1	UT21B	21EP4A
A-UT2272	123	81	H-1	UT21B	21EP4A
A-UT2274, W	123	81	H-1	UT21B	21EP4A
A-UT2277	123	81	H-1	UT21B	21EP4A
A-UT2279	123	81	H-1	UT21B	21EP4A
A-UT2288	123	81	H-1	UT21B	21EP4A
53-U1852	123	81	H-1	UT21A	17YP4
53-U2124	123	81	H-1	UT21A	20DP4
53-U2125	123	81	H-1	UT21A	20DP4
53-U2226	123	81	H-1	UT21A	21EP4A
53-U2227	123	81	H-1	UT21A	21EP4A
53-U2255	123	81	H-1	UT21A	21EP4A
53-U2260	123	81	H-1	UT21A	21EP4A
53-U2272	123	81	H-1	UT21A	21EP4A

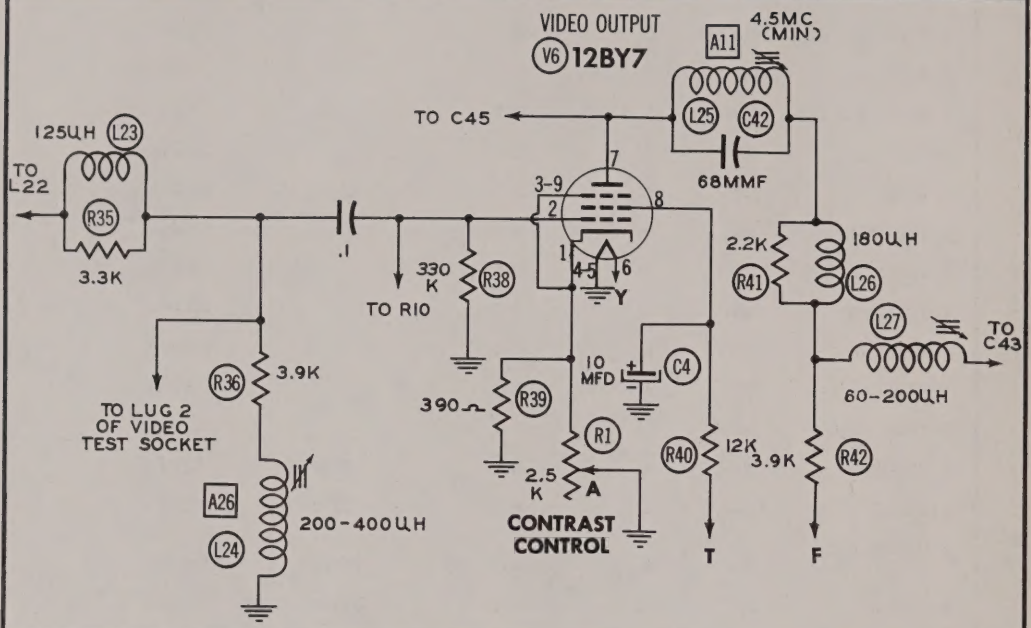
For service data on the UT21A and UT21B UHF tuners, refer to Photofact Folder 9, Set 223.

Production changes in RF Ch. 81 through Run 7 and in Deflection Ch. H-1 through Run 3 are covered in Photofact Folder 7, Set 201. Later production changes are given below.

PHILCO MODELS A-T1814, A-T1816, L, A-T1817, HM, A-T1856, HM, L, W, A-T2230, L, A-T2232, A-T2262HM, A-T2272, L, A-T2274, W, A-T2277, L, A-T2279, A-T2288, HM, A-UT1816, L, A-UT1817, A-UT1856, HM, L, W, A-UT2230, A-UT2232, A-UT2272, A-UT2274, W, A-UT2277, A-UT2279, A-UT2288, 53-T1824, 53-T1825, 53-T1826, 53-T1852, F, L, 53-T1854, L, 53-T2124, L, 53-T2125, L, 53-T2126, 53-T2152, L, 53-T2226, 53-T2227 (Code 123) 53-T2225 (Code 123&133) 53-T2260, 53-T2262, 53-T2264, 53-T2274, L, 53-U1852, 53-U2124, 53-U2125, 53-U2226, 53-U2227, 53-U2255, 53-U2260, 53-U2272 (Code 123) (Ch. 81, H-1, A)

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1953 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

Ch. 81 Run 8	TO REDUCE SNOW IN MEDIUM SIGNAL AREAS The AGC delay resistor, R75, was changed from 15Meg to 10Meg.
Ch. 81 Run 9	TO IMPROVE SYNC PERFORMANCE A 33MMF capacitor was added, from pin 1 (grid) of V11 (6BE6) to ground. A .01MFD capacitor was connected in series with R60 to pin 2 of the Sync Amp., V10. A 1.5Meg reisistor was added between pin 2 of V10 and ground. R59 was changed from 2.7KΩ to 3.3KΩ. R65 was changed from 330KΩ to 470KΩ. R67 was changed from 180KΩ to 330KΩ. R71 was changed from 1.2Meg to 470KΩ. A partial schematic showing the revised circuit is given below.



Ch. 81 Runs 10, 10X	TO IMPROVE PICTURE QUALITY C40, V6 cathode resistor, was removed.
Ch. 81 Run 11	TO IMPROVE PICTURE QUALITY The 4.5MC trap coil (L25) was changed to one of lower inductance (part #32-4463-2) and the 4.5MC Trap capacitor (C42) was changed from 27MMF to 68MMF. L26, series peaking coil, was changed from 250 microhenries to 180 microhenries (part #32-4480-9), and R41, in parallel with L26, was changed from 6.8KΩ to 2.2KΩ. L27, video peaking coil, was changed from 60 microhenries to a 60-200 microhenries, variable coil (part #32-4467-18). L24 was changed from a variable 175-500 microhenries coil to a 200-400 microhenries coil (part #32-4467-17). R35 was changed from 6.8KΩ to 3.3KΩ. A partial schematic is given on the next page, which shows the revised video amp. circuit. R22 and R23 were omitted and a single 220Ω resistor was added across the secondary of L13. R62, V10 plate resistor, was changed from 22KΩ to 18KΩ, 2 watt. R68, V11 grid resistor, was changed to a 1Meg (± 5%) resistor.
Ch. 81 Run 12	CONTRAST CONTROL CHANGED The contrast control, R1A, was changed from 2.5KΩ to 1KΩ. The part number for the new control is 33-5563-61.
Ch. 81 Run 13	TO REDUCE CHANNEL 5 BEAT L22, video detector peaking coil, was changed to part number 32-4112-24.

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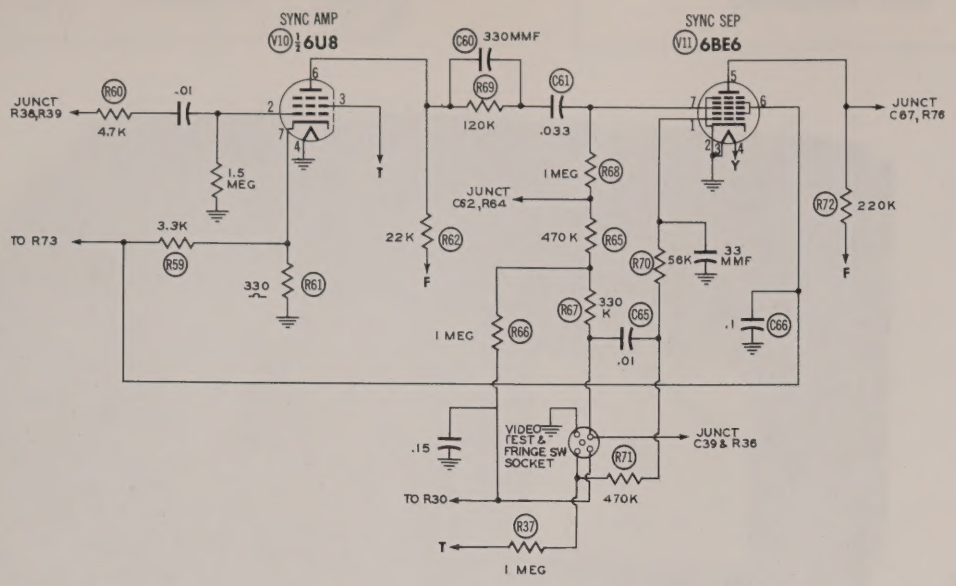
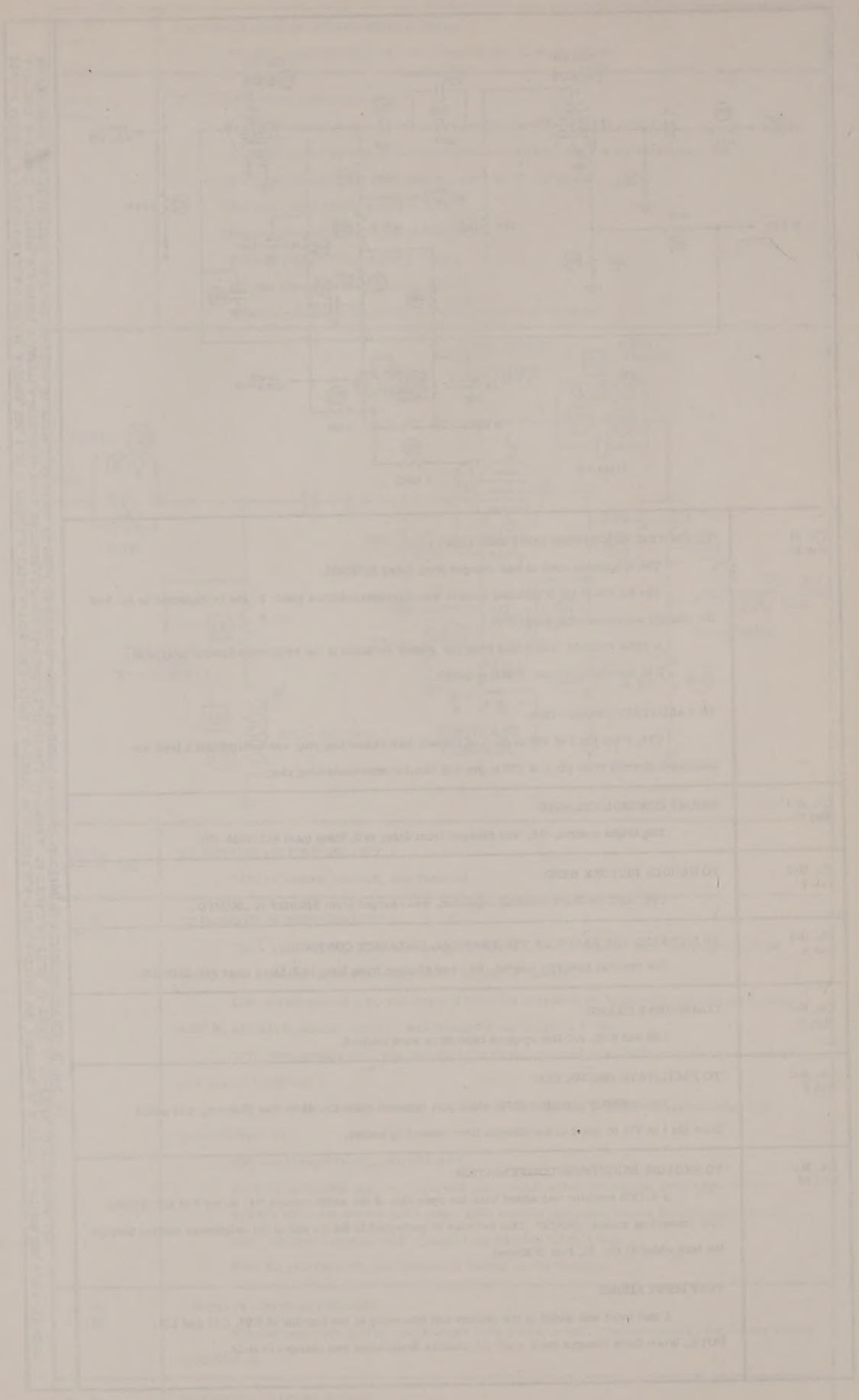


Ch. 81 Run 15	TO PROVIDE BRIGHTNESS COMPENSATION The brightness control was changed from 5Meg to 100KΩ. The B+ end of the brightness control was disconnected from point F and reconnected to pin 9 of the chassis interconnecting plug. A 22KΩ resistor was added from the center terminal of the brightness control to ground. R43 was changed from 100KΩ to 150KΩ. TO FACILITATE PRODUCTION C78, from pin 2 of V10 to pin 4 of chassis interconnecting plug was omitted and a lead was connected directly from pin 2 of V10 to pin 4 of chassis interconnecting plug.
Ch. H-1 Run 4	HEIGHT CONTROL CHANGED The height control, R6, was changed from 5Meg to 2.5Meg (part #33-5565-32).
Ch. H-1 Run 5	TO REDUCE PICTURE BEND C80, AFC feedback coupling capacitor, was changed from 820MMF to .001MFD.
Ch. H-1 Run 6	TO INCREASE THE RANGE OF THE VERTICAL LINEARITY CONTROL The vertical linearity control, R5, was changed from 1Meg to 2.5Meg (part #33-5565-32).
Ch. H-1 Run 7	COMPONENT CHANGE C95 and C96, AC line by-pass capacitors were omitted.
Ch. H-1 Run 9	TO FACILITATE PRODUCTION The 1000MMF capacitor (C78) which was removed from Ch. 81 in Run 15 above, was added from pin 1 of V13 to lug 4 of the chassis interconnecting socket.
Ch. H-1 Run 10	TO PROVIDE BRIGHTNESS COMPENSATION A 8.2KΩ resistor was added from the open side of the width control, R4, to lug 9 of the chassis interconnecting socket. (NOTE: This resistor is connected to the B+ end of the brightness control through the lead added in Ch. 81, Run 15 above). TEST POINT ADDED A test point was added to the chassis and connected to the junction of R99, C84 and L31. NOTE: When these changes were made the chassis designation was changed to H-1A.



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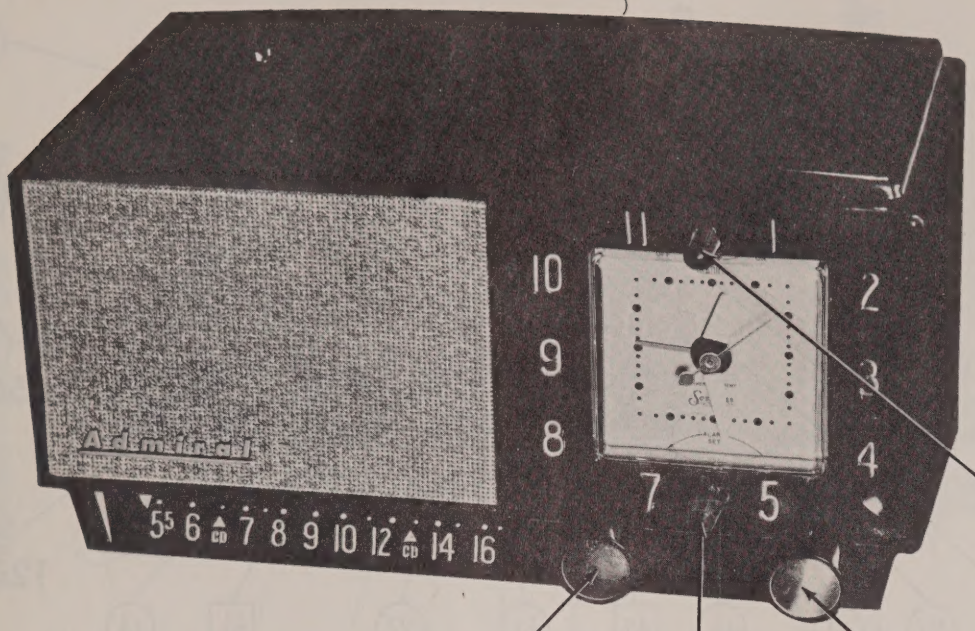


TUNING CONTROL

ALARM

ON-OFF VOLUME CONTROL

ADMIRAL
CHASSIS 5E3

TRADE NAME	Admiral Models 5E31, 5E32, 5E33, 5E38, 5E39 (Ch. 5E3)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Ill.
TYPE SET	AC Operated AM Superheterodyne Receiver with Electric Clock
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
On some sets the IF transformers have hollow core slugs. When aligning these transformers, Admiral IF alignment tool #98A30-7 (or equivalent) should be used.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	250MMF	High side to antenna stator lug of tuning gang. Low side to B-.	455KC (400%Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	With 1400KC signal tuned in, the extreme left edge of pointer CARRIAGE should fall across the center of small calibrating hole above "14" stamped on dial back plate. If necessary, loosen carriage clasps and place in correct position. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1953 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	70	150	67A17-1	PRS150/80-40		EDL8415		3N536	TVA-2460	Red
B	30	150								Yellow
C2	.1	200	64B1-30	P288-1	DF-104	PTE4P1		PT401	2TM-P1	
C3	10000		65C10-3	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C4	47		65C6-79	SI47	D6-470		GP1K-470	UC-5447	5GA-Q47	
C5A	220									
B	5000									
C			*63B6-7	*PA-113-2	*PC-151		*1408-02		*103C5	
D	5000									
E										
C6	10000		65C10-3	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C7	.047	400	65A13-5	489ZX-047		PTE4S47		PT4147	4TM-S47	
C8	.1	200	64B1-30	P288-1		PTE4P1		PT401	2TM-P1	

* Items C5A, C5B, C5C, C5D, C5E, R5A, R5B and R5C are combined in one unit. when replacing items separately items C5C and C5E total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	75B1-58	Q13-137	AG-63-Z	AB-70	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	KB-1	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	22KΩ	½	60B8-223	BTS-22K	
R3	180Ω	½	60B8-181	BTS-180	
R4	1Meg	½	60B8-105	BTS-1Meg	
R5A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦63B6-7	BTS-470K	
C	470KΩ	½		BTS-470K	

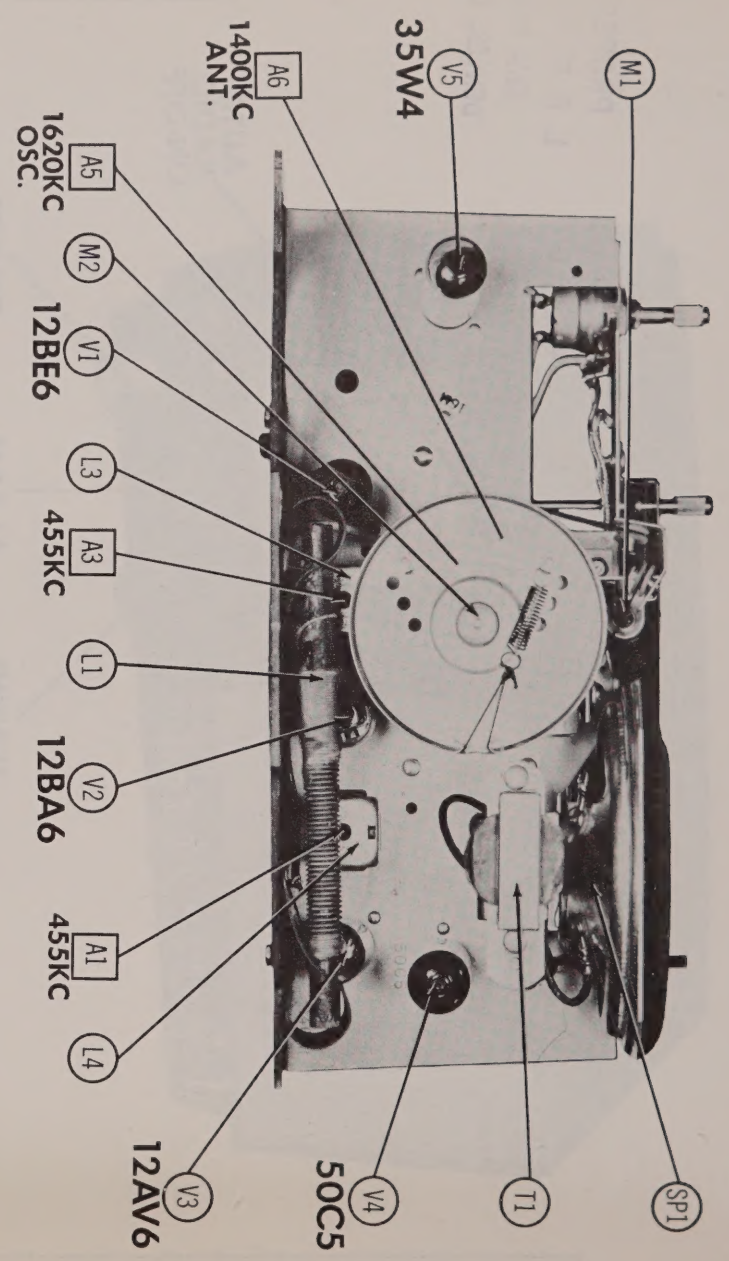
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R6	150Ω	½	60B8-151	BTS-150	
R7	33Ω	1	60B28-3	BTA-33	
R8	560Ω	2	60B20-561	BTB-560	

♦ Items R5A, R5B, R5C, C5A, C5B, C5C, C5D, C5E are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.4KΩ	3.1Ω	150Ω	.45Ω	98A4	A-3332	A-3025	RO-2	S-2X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4	PM	3.1Ω	78B85-1	ST-113 MOD P4-X	4AD7	

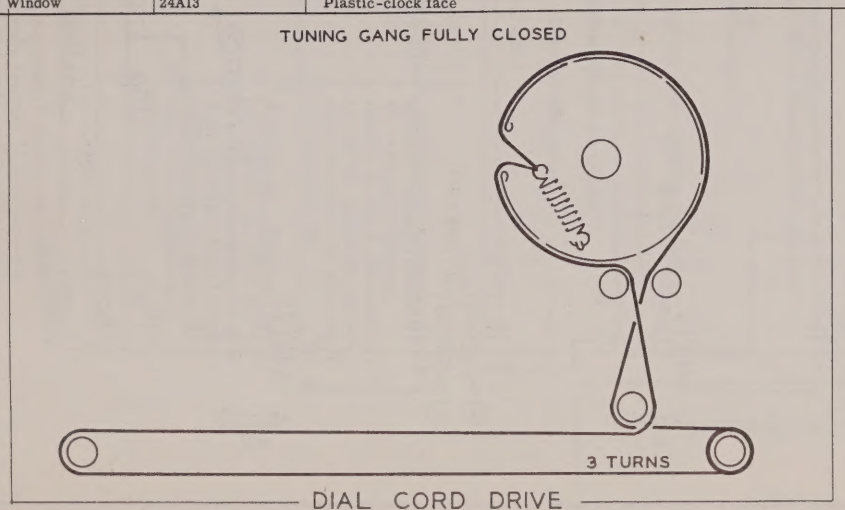
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.6Ω		69B171				Includes cabinet back
L2	Osc. Coil	6.5Ω		69A52-7			71-OSC †	@ .6Ω
L3	Input IF	17Ω	17Ω	72B28-7*	16-6758	BC-352	12-C1	Uses slotted tuning core slugs.
L4	Output IF	17Ω	17Ω	72B28-7*	16-6758	BC-353	12-C2	Uses slotted tuning core slugs

* Alternate Part #1 72C128-7 (Uses hollow tuning core slugs)
† Drill Mtg. Hole

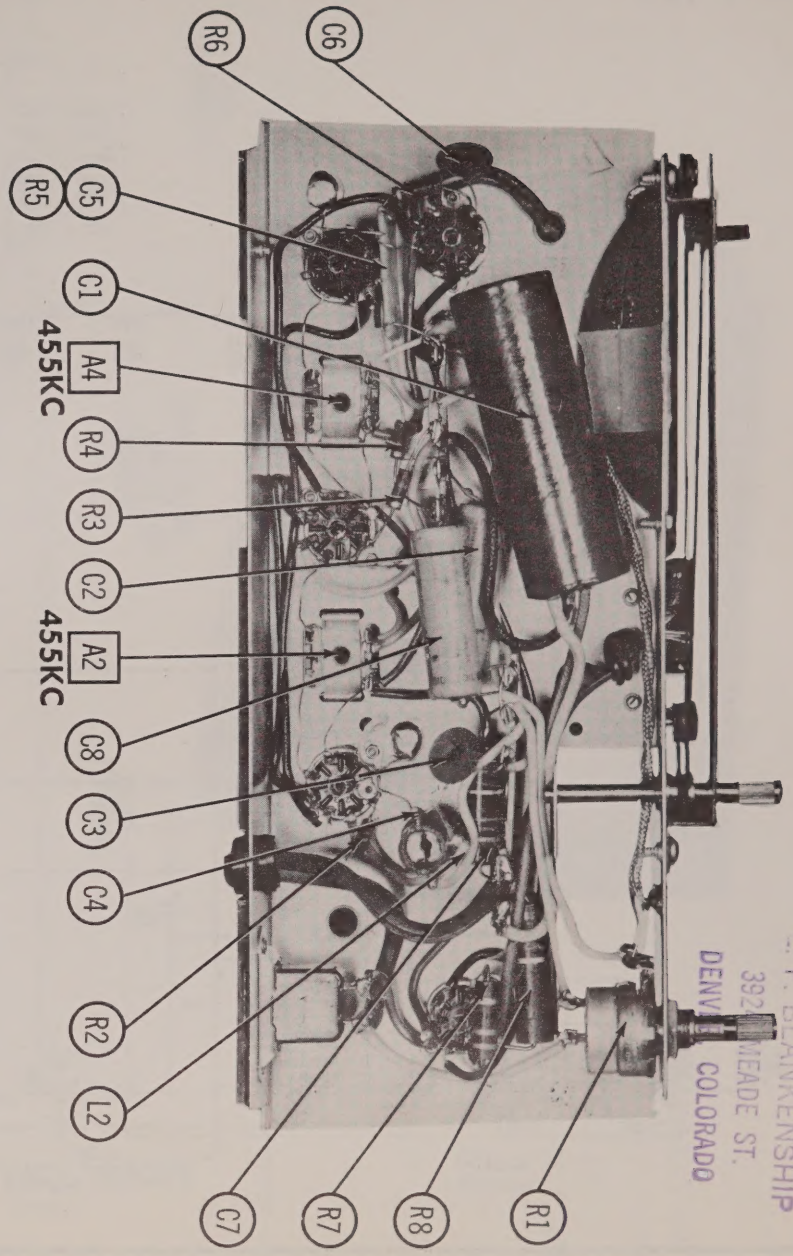
MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M1	Dial Light	81A1-8	#47 Bayonet
M2	Tuning Cap	68B51-1	31-320MMF, 13-117MMF
	Cabinet	34D67-1	Plastic-ebony
	Cabinet	34D67-2	Plastic-maroon
	Cabinet	34D67-3	Plastic-ivory
	Cabinet	34D67-4	Plastic-green
	Cabinet	34D67-5	Plastic-gray
	Knob	33A81-1	Two used -ebony
	Knob	33A81-2	Two used-maroon
	Knob	33A81-3	Two used-ivory
	Knob	33A81-4	Two used-green
	Knob	33A81-5	Two used-gray
	Clock	91C9-1	Complete
	Knob	91C9-11	Clock-ebony
	Knob	91C9-12	Clock-maroon
	Knob	91C9-13	Clock-ivory
	Knob	91C9-14	Clock-green
	Knob	91C9-15	Clock-gray
	Window	24A13	Plastic-clock face



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



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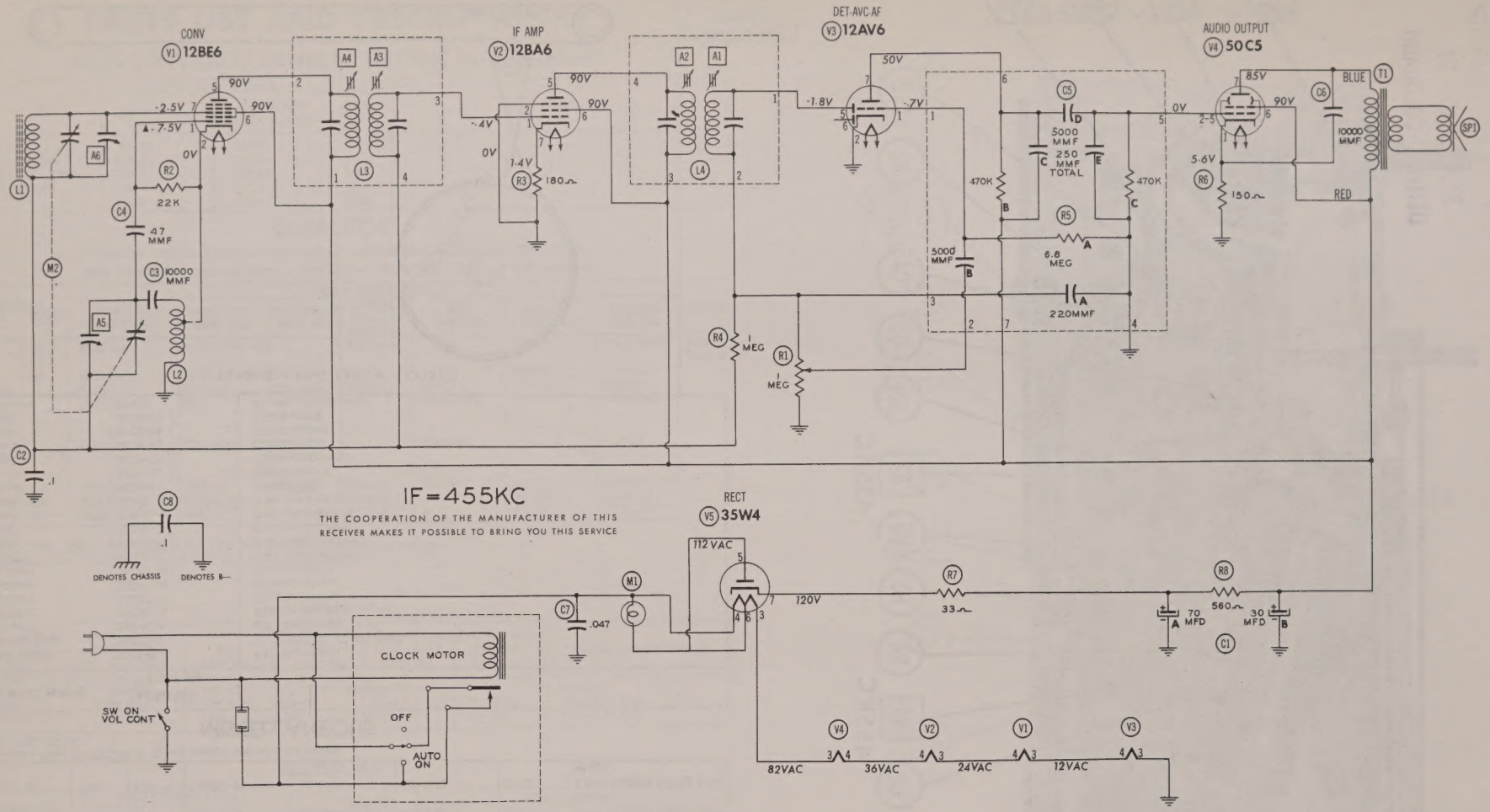
392 MEADE ST.
DENVER COLORADO

ADMIRAL MODEL 5E31



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.6Ω	14Ω	27Ω	†590Ω	†590Ω	2Meg
V 2	12BA6	2Meg	0Ω	27Ω	40Ω	†590Ω	†590Ω	180Ω
V 3	12AV6	6.8Meg	0Ω	0Ω	14Ω	1Meg	INF	†470KΩ
V 4	50C5	150Ω	470KΩ	115Ω	40Ω	470KΩ	†590Ω	†740Ω
V 5	35W4	†33Ω	†33Ω	115Ω	165Ω	160Ω	160Ω	500KΩ

† MEASURED FROM PIN 7 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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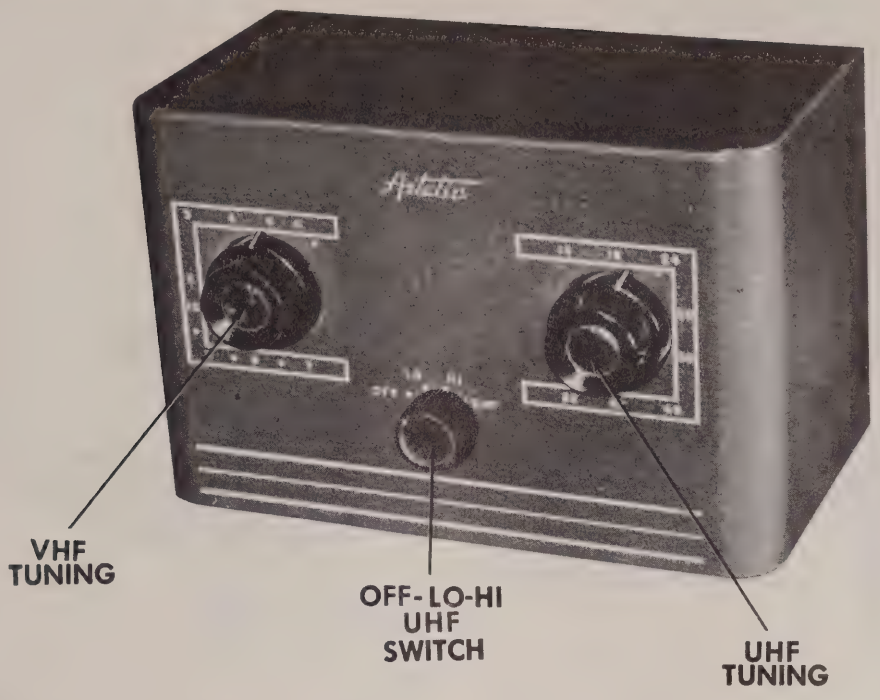
1- DC voltage measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt.
2- Socket connections are shown as bottom views.
3- Measured values are from socket pin to common negative.
4- Line voltage maintained at 117 volts for voltage readings.
5- Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6- Volume control at maximum, no signal applied for voltage measurements.

PROPERTY OF
DENVER, COLORADO



ASTATIC
MODEL CB-1 (UHF Conv.-Booster)

ASTATIC
MODEL CB-1 (UHF Conv.-Booster)

TRADE NAME	Astatic Model CB-1
MANUFACTURER	Astatic Corp., Conneaut, Ohio
TYPE SET	AC Operated UHF Converter-VHF Booster
TUBES (Three)	Types 6T4 UHF Osc., 6J6 1st.RF Amp., 6BQ7A 2nd. RF Amp.
POWER SUPPLY	110-120 Volts AC RATING .22 Amp. @ 117 Volts AC
TUNING RANGE - Booster (Channels 2 thru 13) Converter (Channels 14 thru 83)	

VHF CIRCUIT PERFORMANCE CHECK

VHF circuit alignment should not be attempted in the field because of the extreme care required.
Alignment of this portion of the converter should be done at the factory.
The following information is given to enable the technician to check the VHF circuits for satisfactory performance:

1. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
2. Connect VHF sweep generator (120Ω carbon resistor in each lead) to VHF antenna terminals.
3. Connect demodulator probe (Fig.1) from VHF output terminals to vertical amplifier of oscilloscope.
4. Set sweep generator and converter to channel 6.
5. Check for typical response curve similar to Fig. 2.

A similar response check should be made on other channels by adjusting both the sweep generator and the VHF tuning to the desired channel.

UHF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
For convenience a UHF calibrating template can be made by tracing the UHF calibration from the cabinet on thin paper and gluing the paper on cardboard and mounting this behind the UHF tuning knob.
Alignment should be necessary only after replacing UHF oscillator tube or if unit has been tampered with.
Set converter range switch to UHF.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across UHF antenna terminals with in each lead.	497MC (10MC Swp)	495.25MC 499.75MC	18	Vert. Amp. thru probe (Fig.1) to VHF output terminals.	A1, A2, A3	Set UHF tuning to channel 18. Adjust for response similar to Fig. 2. Adjust A2 and A3 for maximum indication on scope. Set UHF tuning to channel 82.
2.	"	"	881MC	879.25MC	82	"		If response is displaced too far readjust A1. If A1 required readjustment switch back to channel 18 and adjust A4 for response similar to Fig. 2 by compressing or expanding coil.
3.	Check for response similar to Fig. 2 on channels 48 and 82 or any other desired channel.							

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ASTATIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	UHF Oscillator	6T4	6T4	7DK	
V2	1st. RF Amplifier	6J6	6J6	7BF	
V3	2nd. RF Amplifier	6BQ7A	6BQ7A	9AJ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ASTATIC PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	150	6579	PRS150/40-40		EDL-4415		2N511	TVA-2445	
B	40	150								
C2	1.5		6085-105-10	SI1.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515		
C3	1.2		6085-102-10							
C4	1.5		6085-105-10	SI1.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515		
C5	50		6086-1	SI50NP0	TCZ-50		NP0-333-500	ZT-545	5TCC-Q5	
C6	50		6086-1	SI50NP0	TCZ-50		NP0-333-500	ZT-545	5TCC-Q5	
C7	800		6523	BPD-0008	D6-801					
C8	2.7		6085-207-10							
C9	50		6086-1	SI50	TCZ-50		NP0-333-500	ZT-545	5TCC-Q5	
C10	50		6086-1	SI50	TCZ-50		NP0-333-500	ZT-546	5TCC-Q5	

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ASTATIC PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R1	47Ω	1/2	6400-470-10	BTS-47	
R2	10KΩ	1/2	6400-103-10	BTS-10K	
R3	10KΩ	1/2	6400-103-10	BTS-10K	
R4	1.2KΩ	2	6569	BTB-1.2K	
R5	100Ω	1/2	6400-101-10	BTS-100	

TRANSFORMER (POWER)

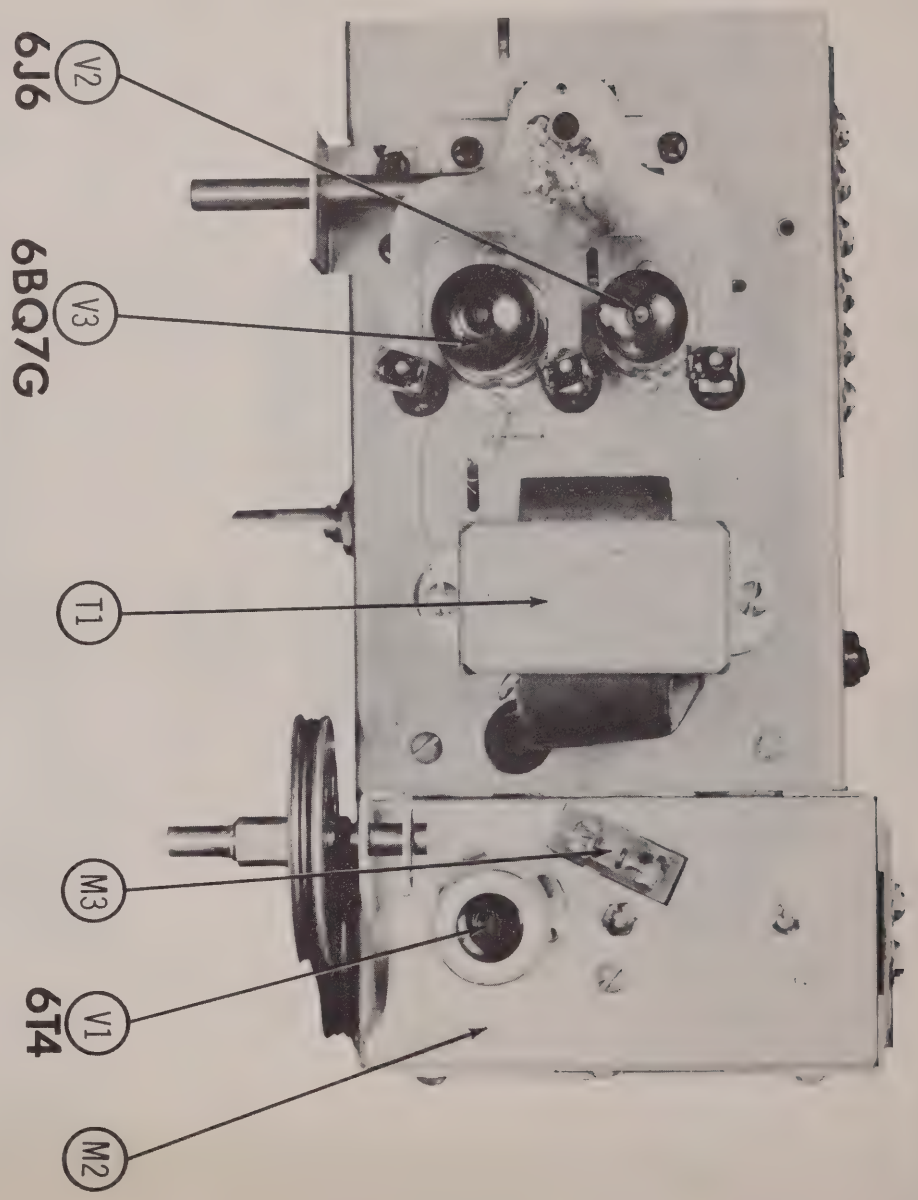
ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: ASTATIC PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .22A	115V .048A	6.3VAC @ 1.06A		B-6534	PA-8421 ①	P-3045 ①		

① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: ASTATIC PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	UHF Conv. IF Output Coil	0Ω		6585				
L2	UHF IF Coupling	0Ω		6088				
L3	UHF IF Coupling	0Ω		6088				
L4	UHF-VHF Booster Input Coil	0Ω		C-6297				
L5	UHF-VHF Booster Interstage Coil	0Ω		C-6298				
L6	Fil. Choke	0Ω		6088				
L7	Fil. Choke	0Ω		6088				
L8	UHF-VHF Booster Output Coil	0Ω		C-6299				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

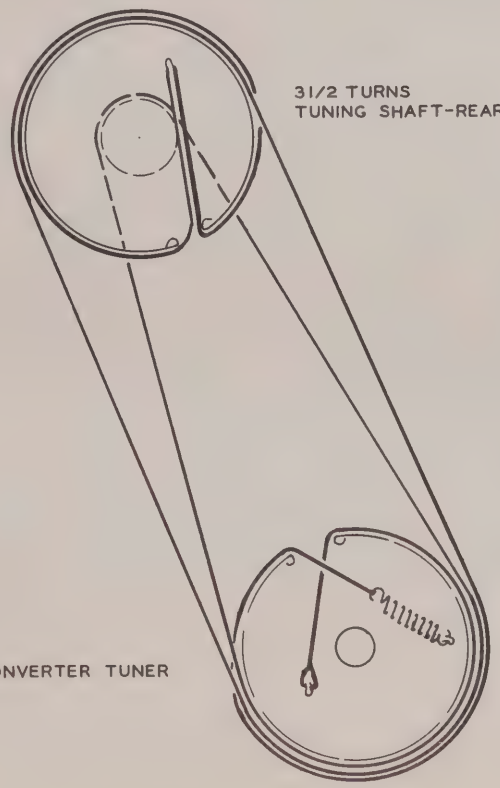
SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT	ASTATIC PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.
M1	.048ADC	5054	NA5	8J1	1002A	6S65	65

MISCELLANEOUS

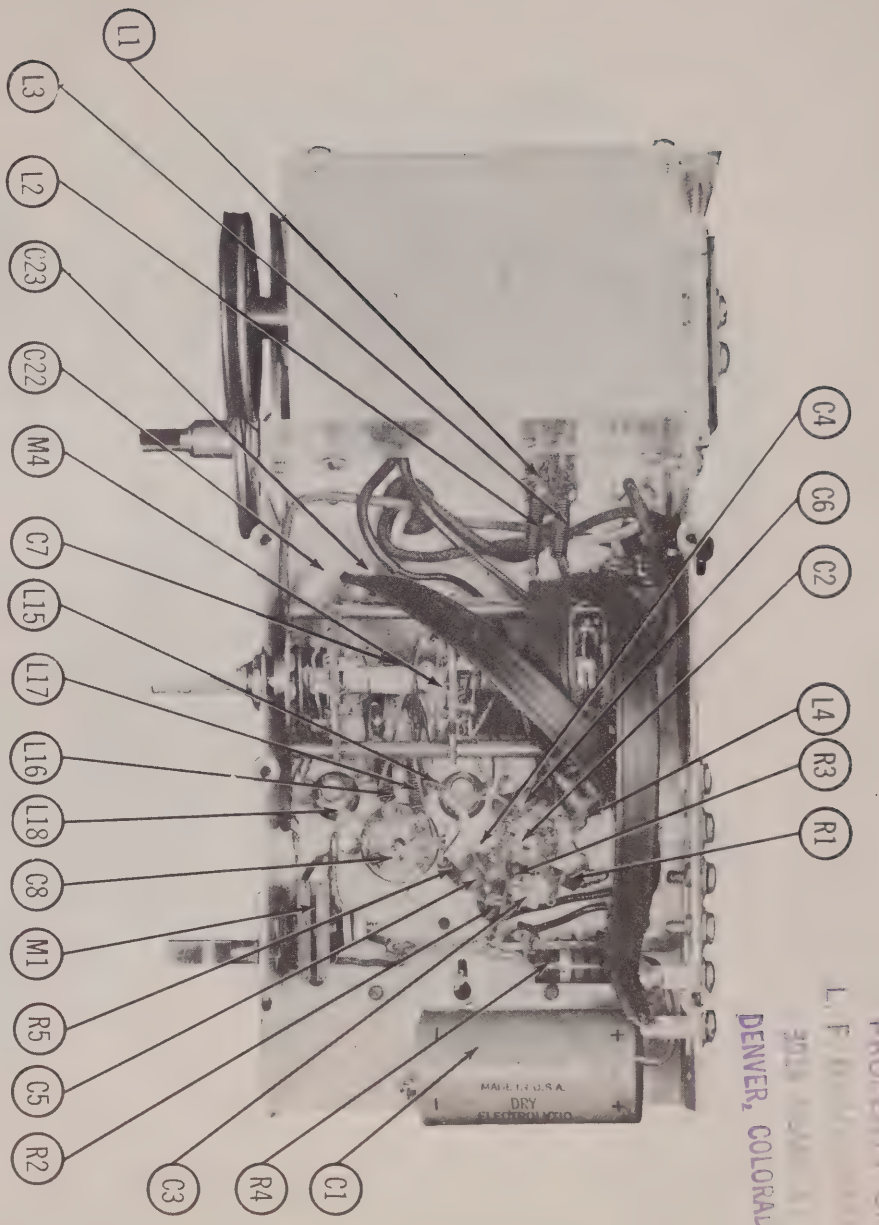
ITEM No.	PART NAME	ASTATIC PART No.	NOTES
M2	UHF Tuner		
M3	Crystal	6557	1N82 Mixer
M4	Switch	B5976-3	Function Selctor 4 position-4 deck

TUNER SET WITH PULLEY CUTOUTS FACING EACH OTHER



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



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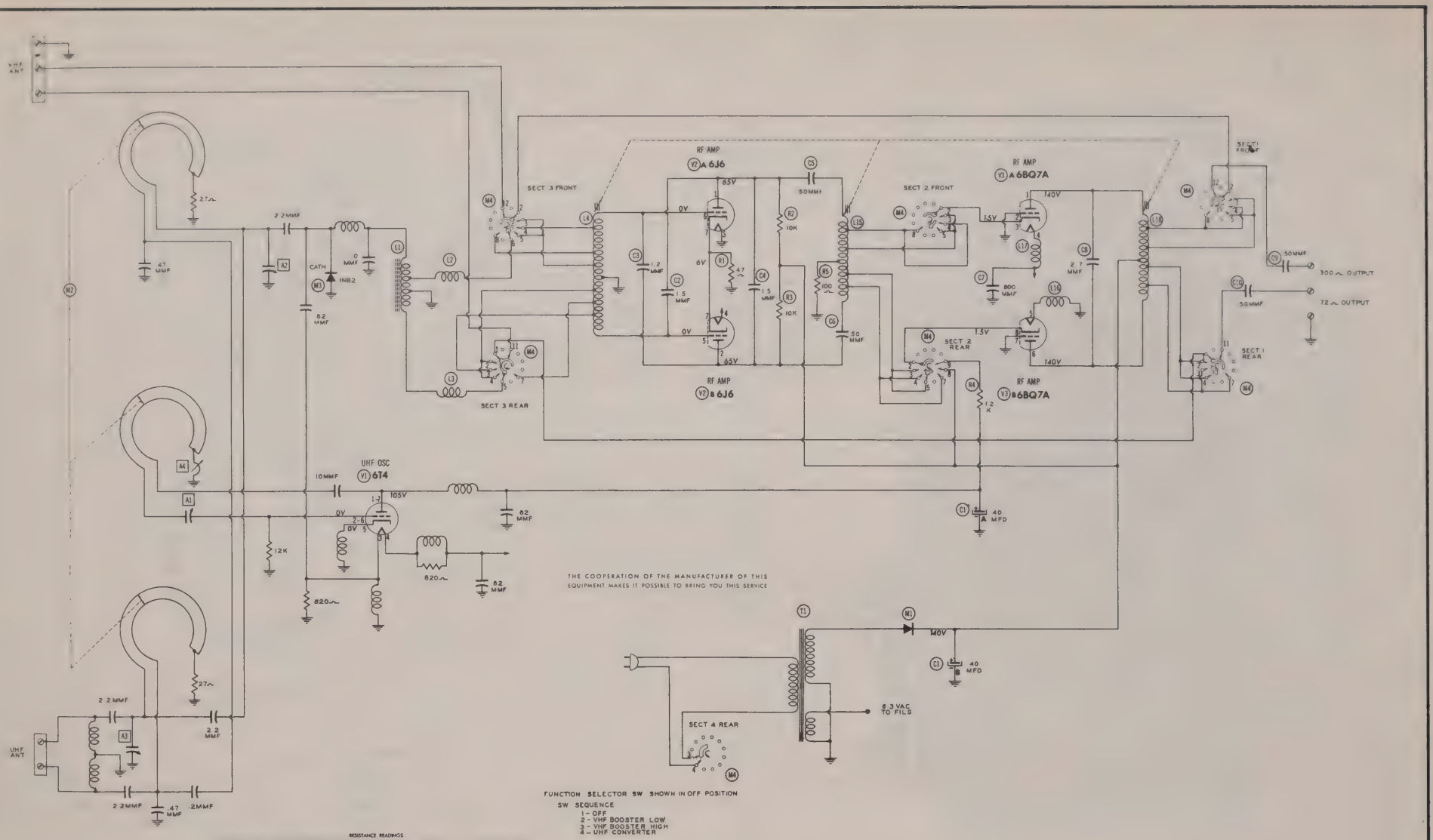

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6T4	†1.2KΩ	12KΩ	.1Ω	.2Ω	.1Ω	12KΩ	†1.2KΩ	
V2	6J6	†10KΩ	†10KΩ	0Ω	.2Ω	0Ω	0Ω	47Ω	
V3	6BQ7A	†9Ω	0Ω	100Ω	.2Ω	.1Ω	†9Ω	0Ω	100Ω

† MEASURED FROM OUTPUT OF M1.

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1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.

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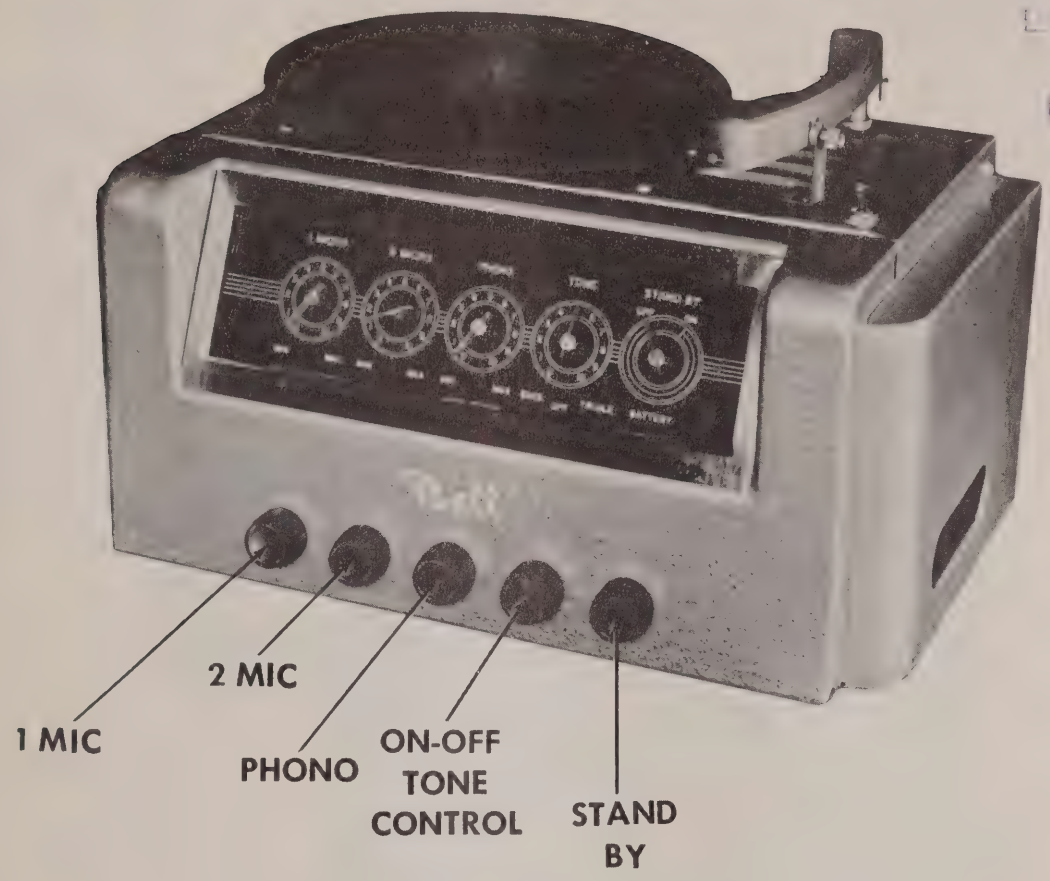
BELL SOUND
MODELS 3723-MB, -MB3



BELL SOUND
MODELS 3723-MB, -MB3

TRADE NAME	Bell Sound Models 3723-MB(Single Speed), 3723-MB3 (3 Speed)
MANUFACTURER	Bell Sound Systems Inc., 555 Marion Rd., Columbus, Ohio
TYPE SET	AC-Battery Operated Mobile Audio Amplifier with single or 3 speed Record Players.
TUBES (Eight)	Types (2) 6AU6 Mic Pre Amp., 6C5 AF Amp., 6J5 AF Amp., 6SN7GTA AF Amp-Phase Inverter, (2) 6L6G Audio Output, (2) 6AX5GT Rectifier
POWER SUPPLY	110-120 Volts AC (or) 6 Volt Storage Battery
RATINGS	1.11 Amp. @ 117 Volts AC (or) 7.6 Amp. @ 6.3 Volts DC

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		BELL SOUND PART No.	STANDARD REPLACEMENT		
V1	Mic Pre-Amp.	6AU6	6AU6	7BK	
V2	Mic Pre-Amp.	6AU6	6AU6	7BK	
V3A	AF Amplifier	6C5	6C5	6Q	
V3B	AF Amplifier	6J5	6J5	6Q	
V4	AF Amplifier Phase Inverter	6SN7GTA	6SN7GTA	8BD	
V5	Audio Output	6L6G	6L6G	7S	
V6	Audio Output	6L6G	6L6G	7S	
V7	Rectifier	6AX5GT	6AX5GT	6S	
V8	Rectifier	6AX5GT	6AX5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

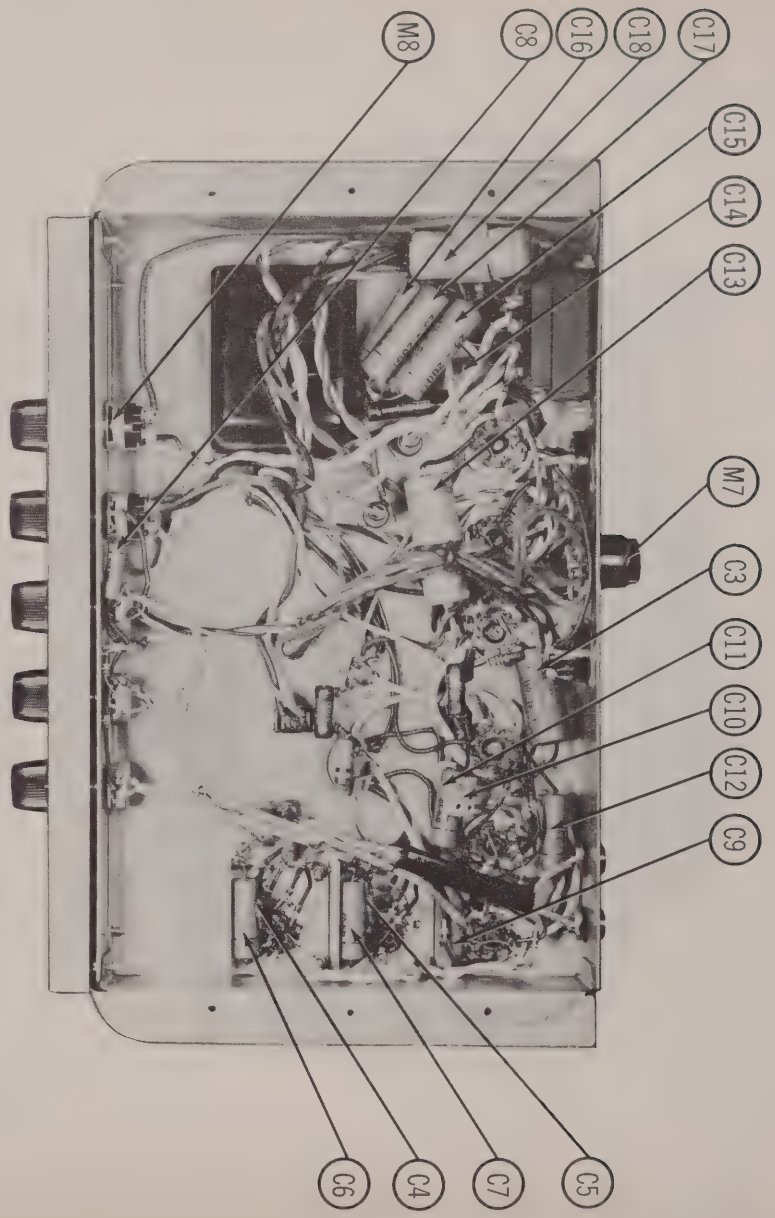
ITEM No.	RATING		REPLACEMENT DATA							NOTE
	CAP.	VOLT	BELL SOUND PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	■20	450		AFH2-51		B040		FP234	TVL2755	
B	▲20	450		PRS50/50		BR505		TC39	TVA-1308	Note 1
C	50	50								
C2A	■20	450		AFH2-51		B040		FP234	TVL2955	
B	▲20	450		PRS 50/50		BR505		TC39	TVA-1308	
C	50	50								Note 2
C3	150	15		PRS 150/150		BRH5015		TC495	TVA-1311	
C4	10000			BPD-01	MD-103	TM5S1	811-01	DC-511	5HK-S1	
C5	10000			BPD-01	MD-103	TM5S1	811-01	DC-511	5HK-S1	
C6	.05	600		P688-05	DF-503	PTES5		PT615	6TM-S5	
C7	.05	600		P688-05	DF-503	PTES5		PT615	6TM-S5	
C8	.003	600		P688-003	D6-302	PTE6D3	GP2-333-302	PT623	6TM-D3	
C9	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C10	300	500		1469-0003	D6-301	5W5T3	GP2K-301	MC241	MS-33	
C11	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C12	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C13	.047	2000		P2089-05				OT467	PX152	
C14	.25	200		P488-25		PTE4P25		PT4025	2TMP25	
C15	.25	200		P488-25		PTE4P25		PT4025	2TMP25	
C16	.25	200		P488-25		PTE4P25		PT4025	2TMP25	
C17	.25	200		P488-25		PTE4P25		PT4025	2TMP25	
C18	.5	200		P288-.5		PJ2P5		PT405	2TM-P5	

Note 1 Some models use a 20-70-50 Mfd. in this application.
Note 2 Some models use a 20-20-20 Mfd. in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BELL SOUND PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	B20066P-107	Q13-133	AG-60-Z	BSK-60	U-48	MikeVolume #1
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	½	B20066P-107	Q13-133	AG-60-Z	BSK-60	U-48	Mike Volume #2
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R2A
R3A	500KΩ	½	B20066P-107	Q13-133	AG-60-Z	BSK-60	U-48	Phono Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R3A
R4A	500KΩ	½	B20066P-109	Q13-133	AG-60-Z	BSK-60-S	U-48	Tone & SW
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R4A
C	Switch		Not Req.	76-2	SWB-2	Noa Req.	US27	Attach to R4A

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA BELL SOUND PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R5	3.3Meg	1/2		BTS-3.3Meg	
R6	100KΩ	1/2		BTS-100K	
R7	100KΩ	1/2		BTS-100K	
R8	27KΩ	1/2		BTS-27K	Note 1
R9	3.3Meg	1/2		BTS-3.3Meg	
R10	100KΩ	1/2		BTS-100K	
R11	27KΩ	1/2		BTS-27K	Note 1
R12	100KΩ	1/2		BTS-100K	
R13	270KΩ	1/2		BTS-270K	
R14	270KΩ	1/2		BTS-270K	
R15	270KΩ	1/2		BTS-270K	
R16	4700Ω	1/2		BTS-4700Ω	
R17	100Ω	1/2		BTS-100Ω	
R18	100KΩ	1/2		BTS-100K	
R19	100KΩ	1/2		BTS-100K	
R20	470KΩ	1/2		BTS-470K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA BELL SOUND PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R21	2700Ω	1/2		BTS-2700Ω	
R22	100KΩ	1/2		BTS-100K	
R23	100KΩ	1/2		BTS-100K	
R24	100KΩ	1/2		BTS-100K	
R25	50KΩ	1		BTA-50K	Note 2
R26	50KΩ	1		BTA-50K	Note 2
R27	270KΩ	1/2		BTS-270K	Note 3
R28	220KΩ	1/2		BTS-220K	Note 4
R29	175Ω	5			
R30	100KΩ	2		BTB-100K	
R31	3000Ω	5		1 3/4 A-3000	
R32	680Ω	1/2		BTS-680	
R33	2000Ω	1/2			
R34	20Ω	5		1 3/4 A-20	Note 5
R35	2000Ω	1/2		1 3/4 A-2000	
R36	620Ω	1/2			

Note 1 Some models use a 15KΩ Resistor in this application.
Note 2 Some models use a single 27KΩ (1Watt) Resistor in this application.
Note 3 Some models use a 220KΩ Resistor in this application.
Note 4 Some models use a 270KΩ Resistor in this application.
Note 5 Some models use a 25Ω (5Watt) in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA BELL SOUND PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ 1.1A or 6.3VAC @ 4.1A	730VCT 160A	6.3VDC @ 5.8A ①						

① Not used when operating on 6.3V.

TRANSFORMER (AUDIO OUTPUT)

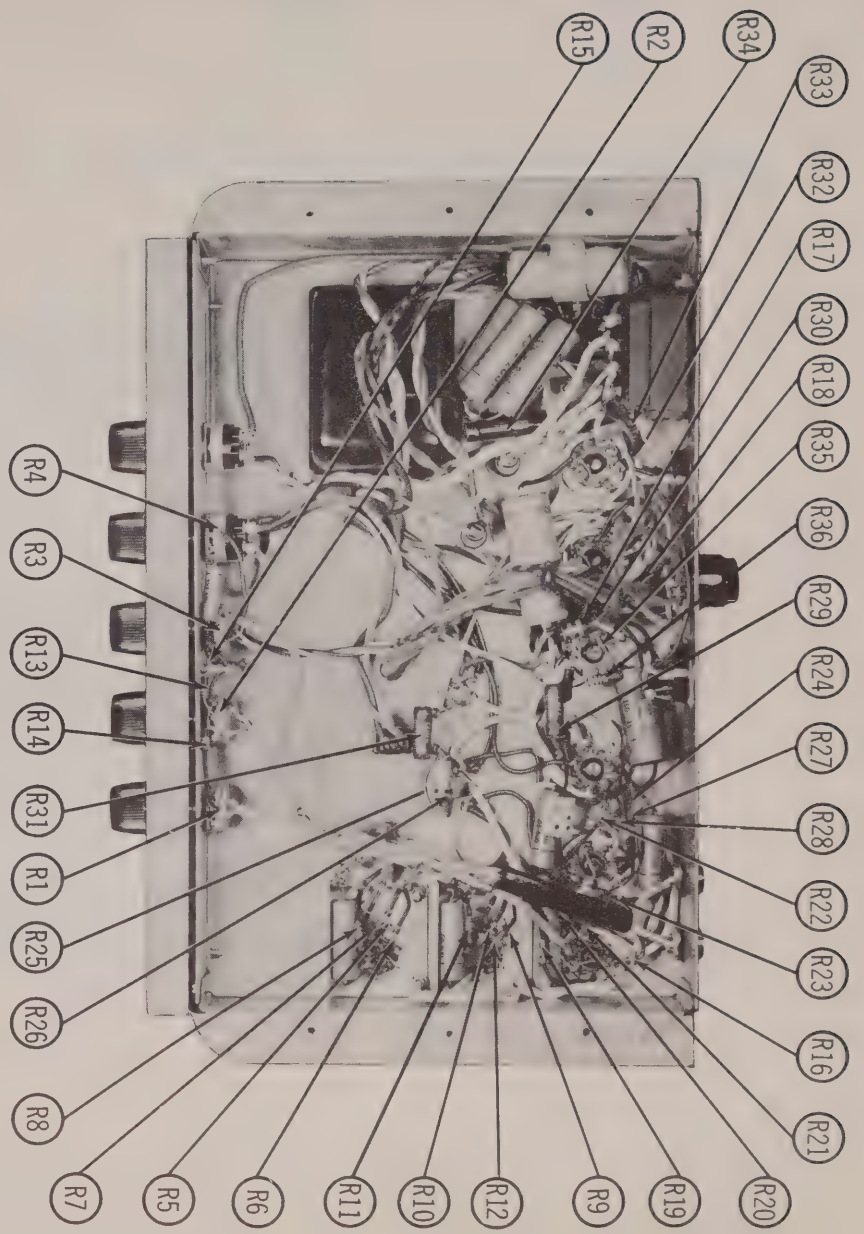
ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA BELL SOUND PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	3.7KΩ CT	500Ω tap @ 330Ω * 250Ω 200Ω, 15Ω, 8Ω, 2Ω, 4Ω	224Ω CT	16Ω tap @ 12Ω 10Ω, 9Ω, .85Ω, .64Ω, .48Ω, .38Ω	B-20056-7					

* This tap is not used.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA BELL SOUND PART No.	REPLACEMENT DATA CORNELL-DUBILIER PART No.	REPLACEMENT DATA MALLORY PART No.	REPLACEMENT DATA RADIART PART No.	NOTES
M1	Interrupter	6.3V	60~		3485		3485	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BELL SOUND PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	30Amp			311030. (3AG 30Amp.)	342001	AGC30	HKP
M3	3AG	2Amp. 250V.			312002. (3AG 2Amp.)	342001	AGC2	HKP

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	BELL SOUND PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M4		L-70-A * WL-70		W58A		12	0-3 or S-3	Model 3723-MB only. * Complete arm & cart. assembly.

ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTHRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

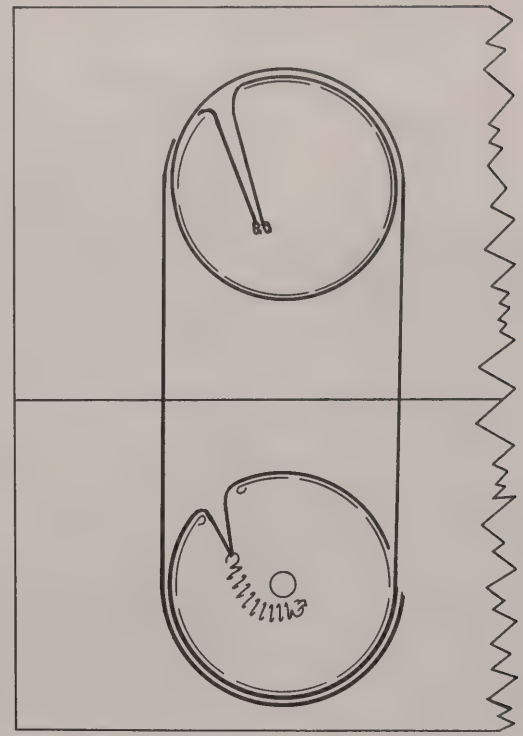
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	BELL SOUND PART No.	WALCO PART No.	JENSEN PART No.	
M5		WS400	J-10	Model 3723-MB

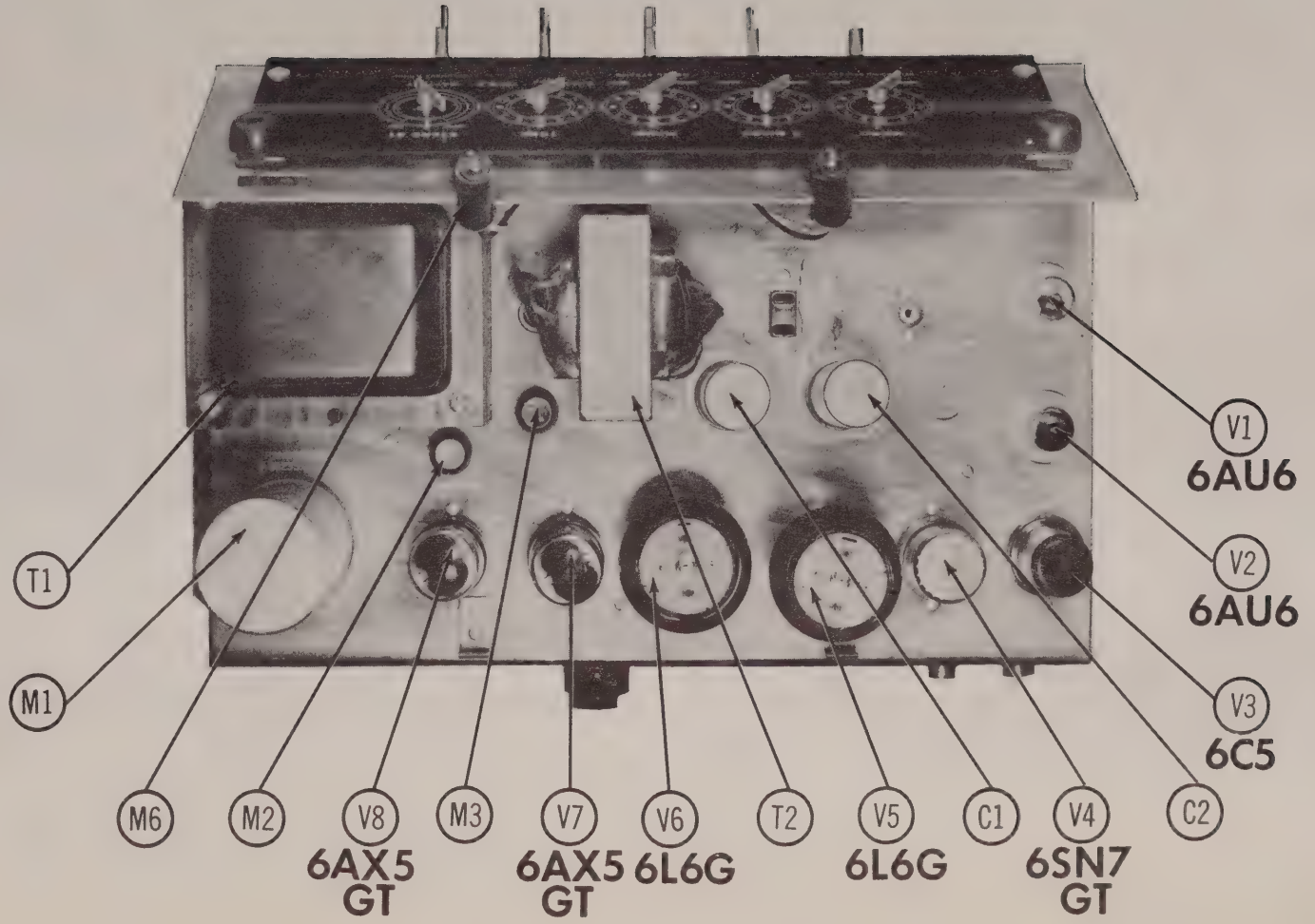
MISCELLANEOUS

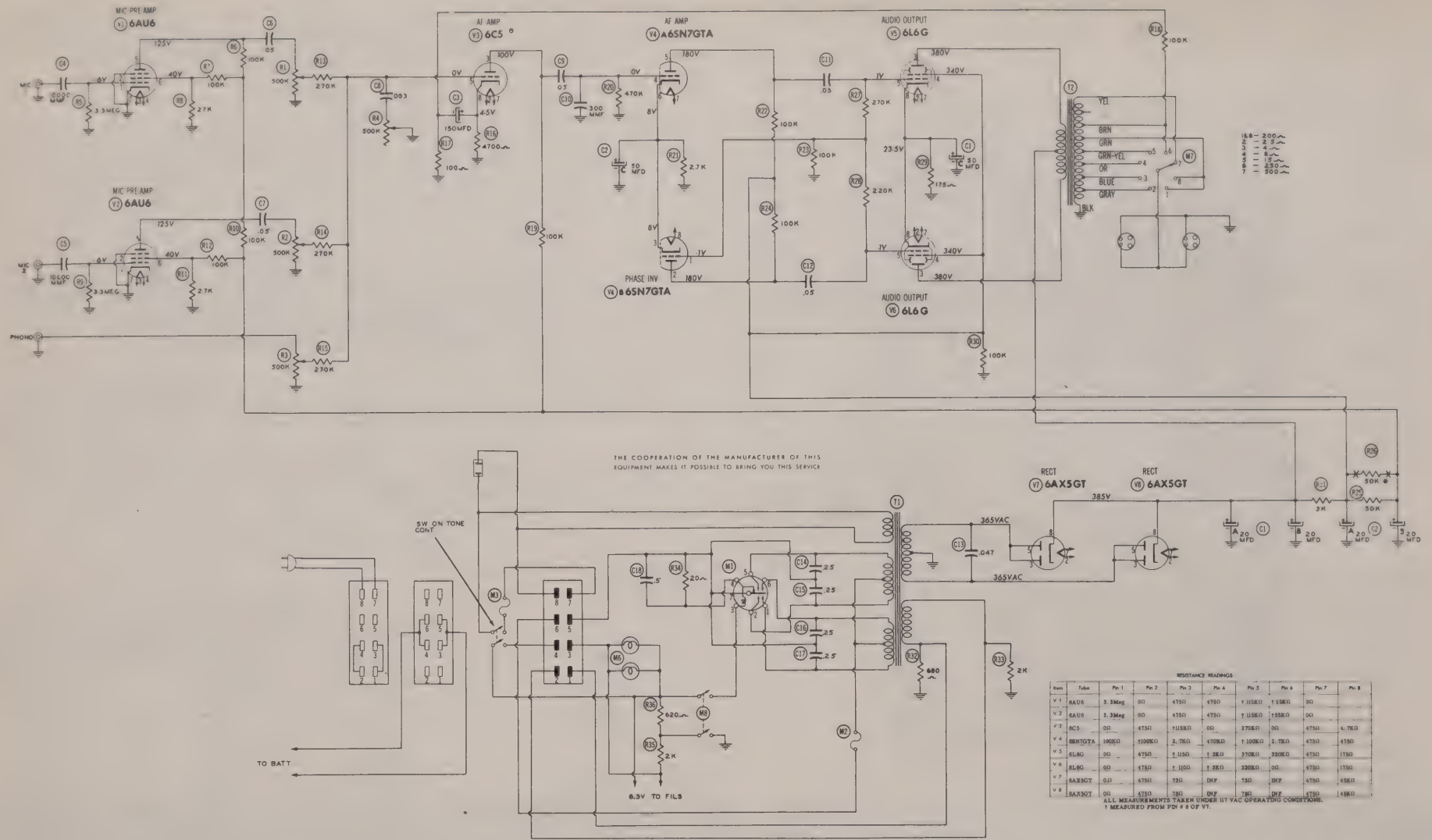
ITEM No.	PART NAME	BELL SOUND PART No.	NOTES
M6	Pilot Light		Type #51 (2Used)
M7	Switch		Output selector
M8	Switch		Stand-by (6V DC only)

5 CONTROLS FULLY COUNTER-CLOCK WISE



DIAL CORD DRIVE


T1
M1
M6
M2
V8
6AX5
GT
M3
V7
6AX5
GT
V6
6L6G
T2
V5
6L6G
C1
V4
6SN7
GT
C2
V3
6C5
V2
6AU6
V1
6AU6



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224-4

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

PROPERTY OF
DENVER, COLORADO

BUICK
MODEL 981321

BUICK
MODEL 981321

TRADE NAME	Buick Model 981321 (For 1953 Buick Cars - Series 50-70)
SUPPLIER	Buick Motor Div., General Motors Corp., Detroit, Mich.
TYPE SET	Battery Operated Custom Built Automobile Receiver
TUBES (Seven)	Types 12BA6 RF Amp., 12BE6 Conv., 12BA6 IF Amp., 12BF6 Det.-AVC-AF Amp., (2) 12V6GT Audio Output, 0Z4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 3.2 Amp. @ 12 Volts DC
TUNING RANGE—BROADCAST	550-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to grid (pin 7) of 12BE6 (V2). Low side to chassis.	262KC (400~Mod)	High frequency end stop	Across voice coil	A1, A2 A3, A4	Adjust for maximum deflection.
2.	82MMF	High side to antenna receptacle. Low side to chassis.	1615KC	"	"	A5, A6, A7	Check mechanical setting of oscillator core (A10). Rear of core should be 1 25/32" from mounting end of coil form. Adjust A5, A6 and A7 in order given for maximum deflection.
3.	"	"	1000KC	Tune to 1000KC signal	"	A8, A9	Adjust for maximum deflection.
4.	"	"	1615KC	High frequency end stop	"	A6, A7	"
5.	"	"	1000KC	Tune to 1000KC signal	"		With pointer adjustment screw set pointer on the first "0" of "100" on the dial.
6.	With radio installed in car and antenna fully extended tune to a weak station between 600 and 1000KC and adjust A7 for maximum volume.						
7.	To set push buttons, pull push button to the left, and out, to release. Tune manually to the desired station. Press push button all the way in. Repeat above procedure for remaining push buttons.						

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		BUICK PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	12BA6	12BA6	7BK	
V2	Converter	12BE6	12BE6	7CH	
V3	IF Amplifier	12BA6	12BA6	7BK	
V4	Det.-AVC-AF Amp	12BF6	12BF6	7BT	
V5	Audio Output	12V6GT	12V6GT	7S	
V6	Audio Output	12V6GT	12V6GT	7S	
V7	Rectifier	0Z4	0Z4	4R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTE
	CAP.	VOLT	BUICK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	■20	400	M908	AFH3-120		CO99		FP345.8	TVL-3678	
B	▲20	400								
C	20	25								
C2	.05	200	6512	P288-05	DF-503	PTE4S5		PT415	2TM-S5	
C3	39	500	G390							
C4	.1	400	6513	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C5	39	500	G390							
C6	180		7257424							
C7	10	500	G100	1469-000010	D6-100	5W5Q1	GP1K-100	MC215		
C8	.005	600	6531	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C9	.0025	400	7240578	P488-0025	D6-252	PTE4D25	GP2-333-252	PT4225	4TM-D25	
C10	120	500	G121	SII20	D6-121		GP2K-121	MC236	1FM-315	
C11	220	500	G221	1469-00025	D6-221	5W5T25	GP2K-221	MC240	1FM-325	
C12	.2	400	6514	P488-2		PTE4P2		PT402	4TM-P2	
C13	.025	400	1211232	P488-025		PTE4S25		PT4125	4TM-S25	
C14	.0015	800	7236134	P1088-0015		PTE16D15		PT1625	MB-D15	
C15	.5	100	6592	VHC-36		MP2P5		RF480	HC-3	
C16	.47	100	7257906	VHC-36		MP2P5		RF480	HC-3	
C17	.007	1600	H702	P1688-007		PTE16D7		PT1627	MB-D7	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BUICK PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	300KΩ	½	7263119				UF55A	Tone
B	1Meg	½	Not Req.				UR16-T35	Volume
C	Shaft		Not Req.				EB-214	Attach to R1A
D	Switch		Not Req.				US-26	Attach to R1B

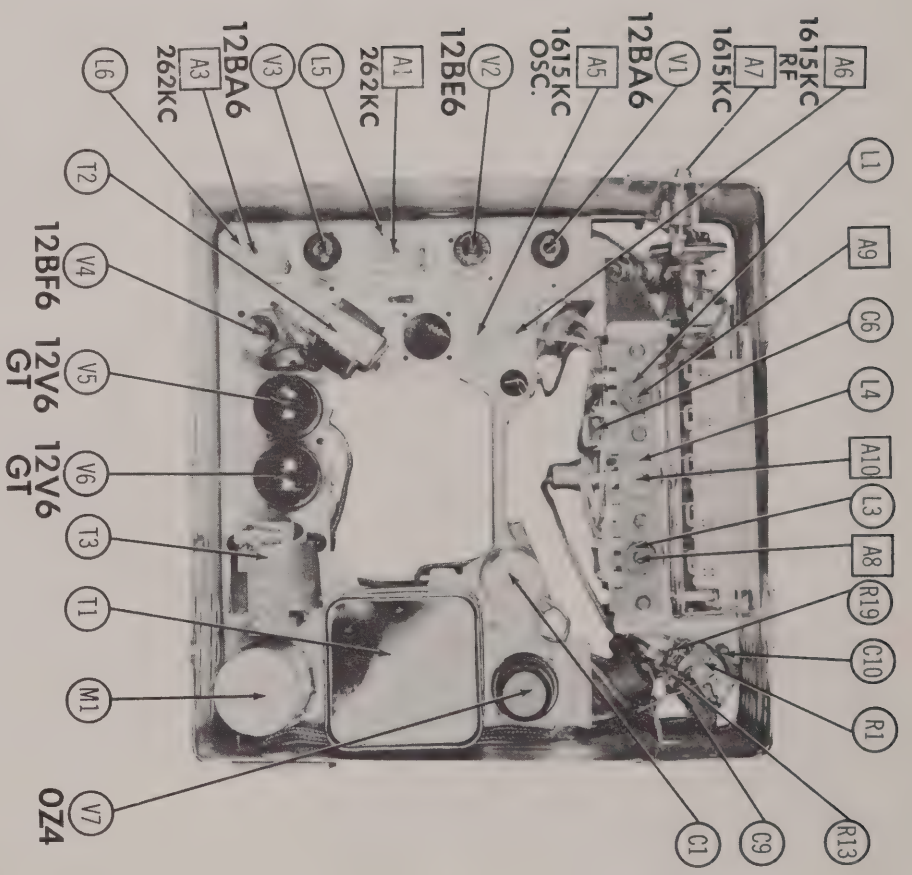
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	BUICK PART No.	IRC PART No.	
R2	150Ω	½	A-151	BTS-150	
R3	2.2Meg	½	A-225	BTS-2.2Meg	
R4	15KΩ	½	C-153	BTS-15K	Note
R5	330KΩ	½	A-334	BTS-330K	
R6	22KΩ	½	A-223	BTS-22K	
R7	15KΩ	1	B-153	BTA-15K	
R8	150Ω	½	A-151	BTS-150	
R9	1Meg	½	A-105	BTS-1Meg	
R10	1Meg	½	A-105	BTS-1Meg	
R11	1Meg	½	A-105	BTS-1Meg	
R12	1000Ω	½	A-102	BTS-1000	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	BUICK PART No.	IRC PART No.	
R13	2200Ω	½	A-222	BTS-2200	
R14	27KΩ	1	B-273	BTA-27K	
R15	47KΩ	½	A-473	BTS- 47K	
R16	820KΩ	½	1211456I	BTS-820K	
R17	360Ω	1	7235463	BTA-360	
R18	68KΩ	½	A-683	BTS-68K	
R19	470KΩ	½	A-474	BTS-470K	
R20	1800Ω	2		BTB-1800	
R21	15KΩ	1	7263189	BTA-15K	
R22	820Ω	½	B-821	BTA-820	

Note 1. Some Models may use a 18KΩ resistor in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	BUICK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	12VCT @ 2A	450VCT .063ADC			6064				

TRANSFORMER (INPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		BUICK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2			1.8KΩ CT		6061					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		BUICK PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T3	7.8Ω CT	3.8Ω	368Ω CT	.34Ω	6063	A-3852	A-2936	RO-110	S-15X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	BUICK PART No.	JENSEN PART No.	QUAM PART No.	
SP1	8"	PM	3.8Ω	6105	ST-115 Mod. P8-V	8A31	

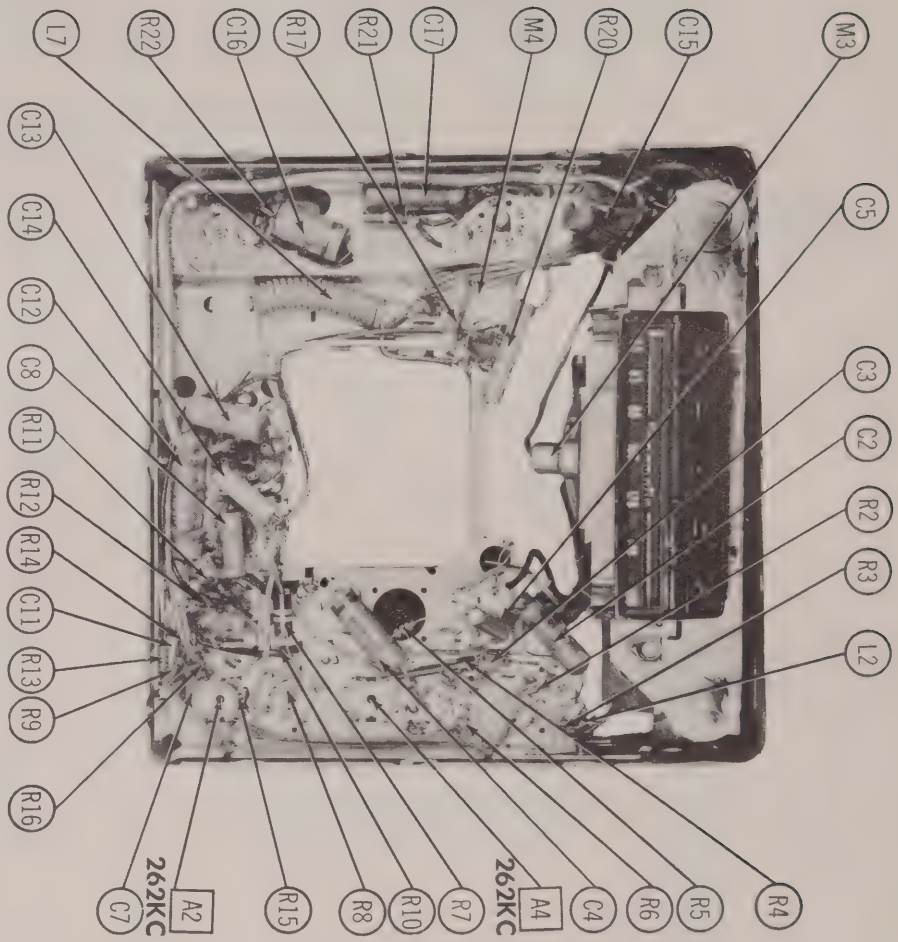
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	BUICK PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	10Ω		7258914				
L2	RF Coupling	4Ω		7240251			4626	28 Microhenries
L3	RF Coil	10Ω		7258914				
L4	Osc. Coil	1.1Ω	4.6Ω	7260499				
L5	Input IF	30Ω	30Ω	1218725	16-6752	BC-350	12-H1	
L6	Output IF	31Ω	31Ω	1218726	16-6754	BC-354	12-H6	
L7	Fil. Choke	0Ω		1217846				

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				BUICK PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12V	115∿	8550	6330	G874	6330	

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BUICK PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	7AG	7½A	7263227	1220177	30307.5 (7AG-7½A)	155009	AGW 7½	HRH

MISCELLANEOUS

ITEM No.	PART NAME	BUICK PART No.	NOTES
M3	Dial Light		#57
M4	Spark Plate	1217848	
A5,A6	Trimmer Cap.	7242454	Dual - Osc. & RF Adjustment
A7	Trimmer Cap.	7260158	Antenna Adjustment
	Knob	1318801	Tuning & Off/On/Volume (2used)
	Knob	1341535	Dummy - tuning
	Knob	1341536	Tone
	Push button	1219455	Includes slide assy. ("B")
	Push button	1219456	Includes slide assy. ("U")
	Push button	1219457	Includes slide assy. ("I")
	Push button	1219458	Includes slide assy. ("C")
	Push button	1219459	Includes slide assy. ("K")
	Dial Glass	7263312	

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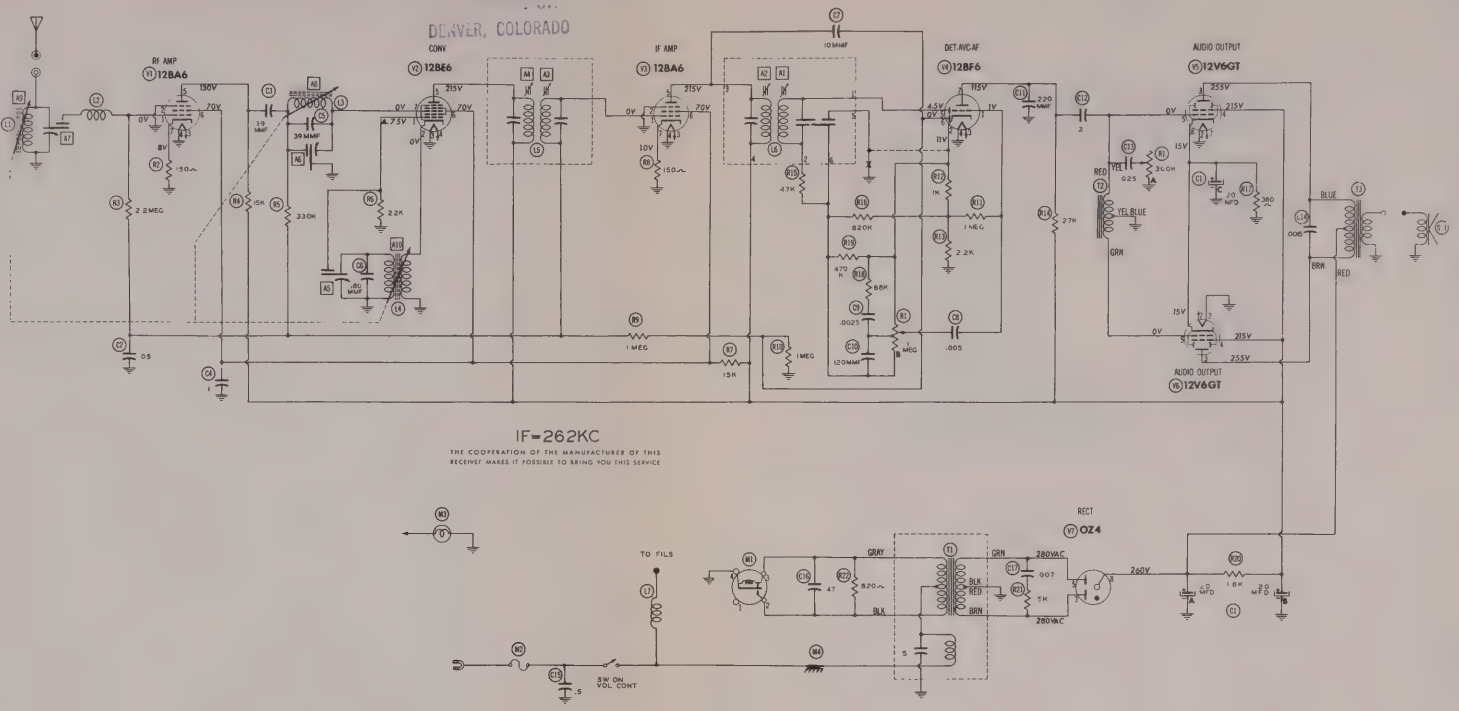

IF=262KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12BA6	4.2Meg	0Ω	.1Ω	0Ω	†6.8KΩ	†6.8KΩ	150Ω	
V 2	12BE6	22KΩ	4.6Ω	0Ω	.1Ω	†1.8KΩ	†6.8KΩ	2.3Meg	
V 3	12BA6	2Meg	0Ω	.1Ω	0Ω	†1.8KΩ	†6.8KΩ	150Ω	
V 4	12BF6	1Meg	0Ω	.1Ω	0Ω	870KΩ	1Meg	†28.8KΩ	
V 5	12V6GT	INF	0Ω	†185Ω	†1.8KΩ	800Ω	INF	.1Ω	360Ω
V 6	12V6GT	INF	0Ω	†185Ω	†1.8KΩ	1KΩ	INF	.1Ω	360Ω
V 7	0Z4	0Ω	INF	240Ω	INF	250Ω	INF	INF	800KΩ

† MEASURED FROM PIN 8 OF V7

▲ TAKEN WITH VACUUM TUBE VOLTMETER

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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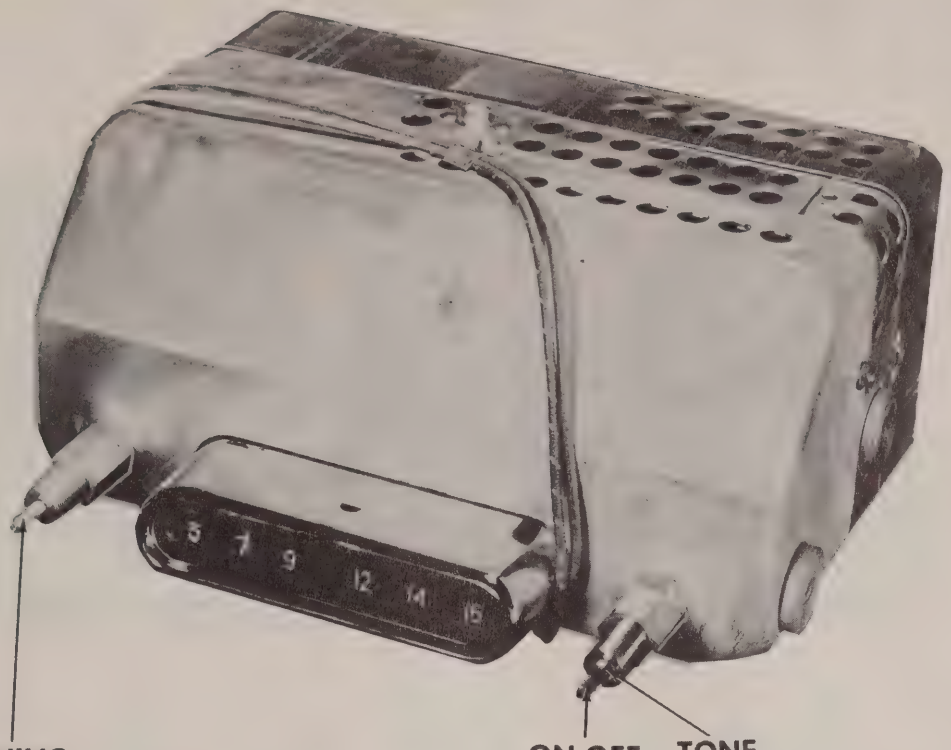

CHEVROLET
MODEL 986669

CHEVROLET
MODEL 986669

TRADE NAME	Chevrolet Model 986669 (For 1953 Chevrolet Automobiles)
MANUFACTURER	Chevrolet Motor Div., General Motors Corp., Detroit, Mich.
TYPE SET	Battery Operated Custom Built Automobile Superheterodyne Receiver
TUBES (Six)	Types 6BA6 RF Amp., 6BE6 Conv., 6BA6 IF Amp., 6AV6 Det.-AVC-AF Amp., 6V6GT Audio Output, 0Z4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 5.6 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	262KC (400%Mod)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum deflection.
2.	82MMF	High side to antenna connector receptacle. Low side to chassis.	1615KC	"	"	A5, A6, A7	Check setting of oscillator core (A8) The rear of core should extend 1 25/32" from the mounting end of the coil form. Adjust A5, A6 and A7 for maximum deflection.
3.	"	"	1000KC	Tune to 1000KC signal	"	A9, A10	Adjust for maximum deflection.
4.	"	"	1615KC	High frequency end stop	"		Readjust A6 and A7 for maximum deflection.
5.	"	"	900KC	Tune to 900KC signal	"		Set poinier to 900KC on the dial.
6.	With radio installed in the car and antenna fully extended, tune to a weak station between 600 and 1000KC and adjust A7 for maximum volume.						

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CHEVROLET PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det-AVC-AF Amp.	6AV6	6AV6	7BT	
V5	Audio Output	6V6GT	6V6GT	7S	
V6	Rectifier	0Z4	0Z4	4R	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CHEVROLET PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	20	400	6309	AFH2-51		BO40		FP234	TVL-2755	
B	20	400								
C2	.05	200	6512	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C3	.05	400	6512	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C4	10	500	G-100	1469-00001	D6-100	5W5Q1	GP1K-100	MC215	1FM-41	
C5	180	500	7257424		D6-181		GP2K-181		5GA-T18	
C6	.01	600	6533	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C7	.05	400	6512	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C8	.001	600	6527	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C9	.006	800	H-602	P1088-006		PTE16D6				
C10	.002	600	6528	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C11	.006	1600	H-602	BCD-22		PTE16D6		PT1626	MB-D6	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	7264211				UF26A	Tone-Panel-Note
B	300KΩ	½					UR354A	Volume & Sw.-Rear
C	Shaft						EB214	Attach to R1A
D	Switch						US-27	Attach to R1B

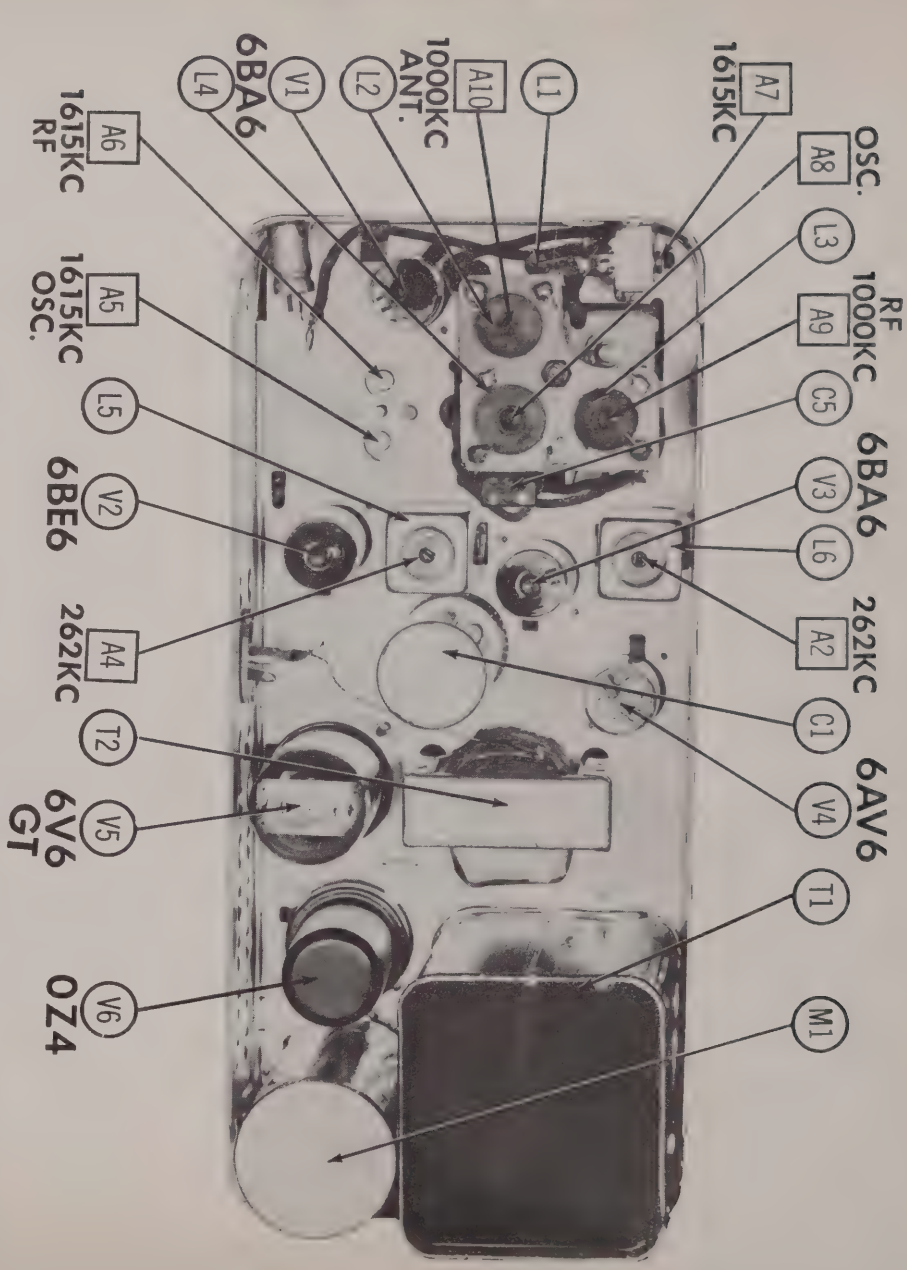
Note: Some models may use an alternate control (Part No. 7262941)

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CHEVROLET PART No.	IRC PART No.	NOTES
R2	150Ω	½	A-151	BTS-150	
R3	2.2Meg	½	A-225	BTS-2.2Meg	
R4	15KΩ	1	B-153	BTA-15K	
R5	15KΩ	2	C-153	BTB-15K	
R6	330KΩ	½	A-334	BTS-330K	
R7	22KΩ	½	A-223	BTS-22K	
R8	150Ω	½	A-151	BTS-150	
R9	1Meg	½	A-105	BTS-1Meg	
R10	47KΩ	½	A-473	BTS-47K	
R11	6.8Meg	½	A-685	BTS-6.8Meg	
R12	220KΩ	½	A-224	BTS-220K	
R13	220KΩ	½	A-224	BTS-220K	
R14	330KΩ	1	B-331	BTA-330	
R15	1800Ω	2			Note
R16	220Ω	1	B-221	BTA-220	

Note: Replace only with 2700Ω (2 watt) & 5600Ω (1 watt) in parallel.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	CHEVROLET PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	6.3VAC @2.9A	520VCT .062ADC			1220163			VT-4 ①	

① Drill new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		CHEVROLET PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	5.1KΩ	4.3Ω	366Ω	.36Ω	6062	A-3877①	A-2930 ①	RO-9 ①	S-3X ①	① Bend mounting tabs down, file out slots, mount on original mounting bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	CHEVROLET PART No.	JENSEN PART No.	QUAM PART No.	
SP1	6 x 9"	PM	4.3Ω	6112	ST-810 Mod. P69-V	69A3	

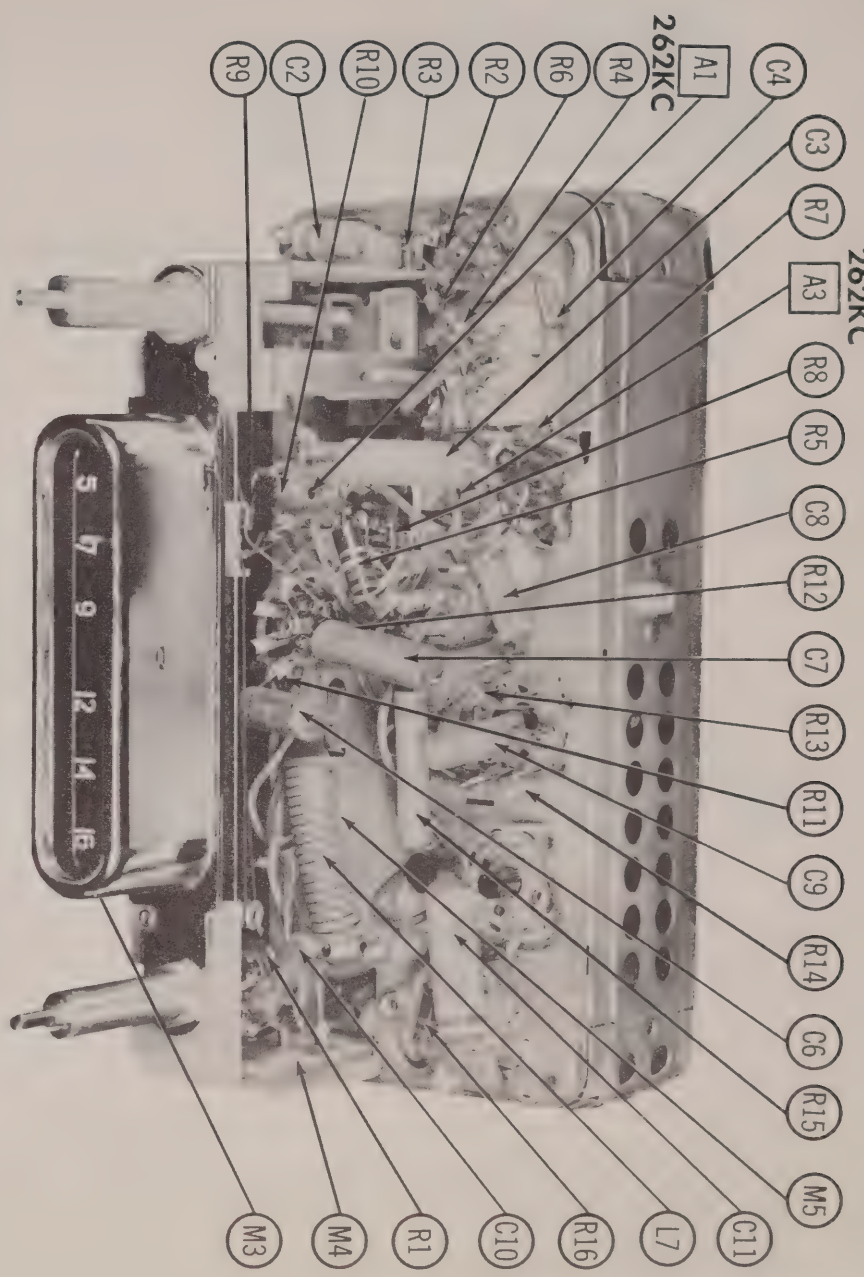
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	CHEVROLET PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. RF Choke	.9Ω		7255738			4612	9Microhenries
L2	Ant. Coil	10Ω		7258914				Less core; core Part # 7259201
L3	RF Coil	10Ω		7258914				Less core; core Part # 7259201
L4	Osc. Coil	1Ω	4.6Ω	7258911				Less core; core Part # 7259201
L5	Input IF	32Ω	32Ω	1218725	16-6752	BC-350	12-H1	
L6	Output IF	32Ω	32Ω	1218726	16-6754	BC-354	12-H6	
L7	Fil. Choke	0Ω		1217846				

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				CHEVROLET PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6.3V	115∿	8542	5300	859	5300	

CHASSIS—BOTTOM VIEW



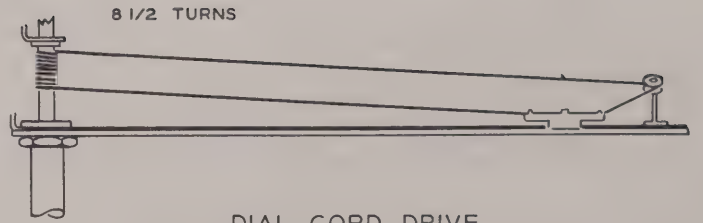
PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

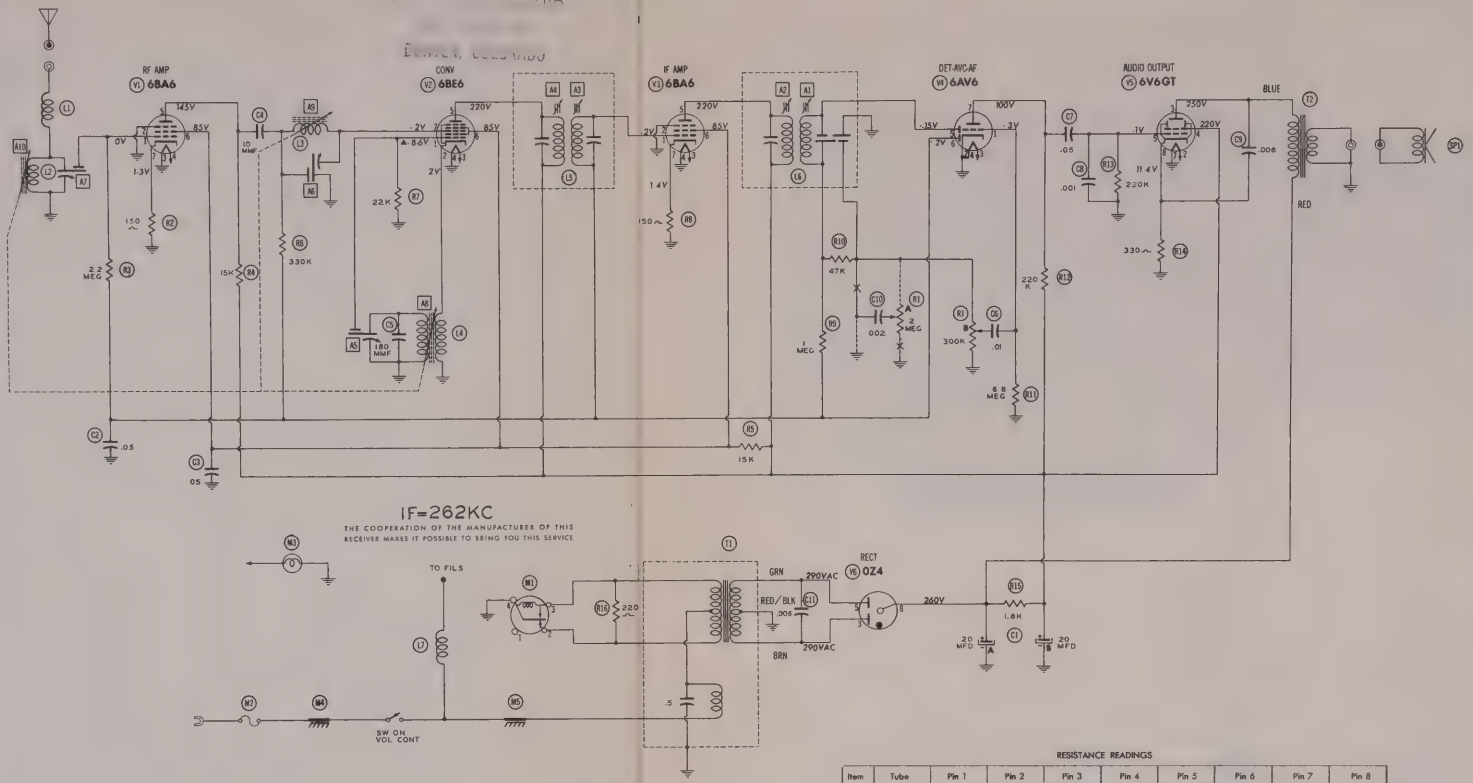
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			CHEVROLET PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	14A	147685	1218728	307014 (14A-SFE)	155014	SFE14	HDI

MISCELLANEOUS

ITEM No.	PART NAME	CHEVROLET PART No.	NOTES
M3	Dial Light	187189	Type #44
M4	Spark Plate	7262937	
M5	Spark Plate	1217848	
A5,A6	Trimmer Cap.	7263918	Dual - RF & Osc. trimmer
A7	Trimmer Cap.	7262875	Antenna trimmer
	Knob	7262190	Off/On/Volume & tuning (2 used)
	Knob	7262188	Dummy (tuning shaft)
	Knob	7262189	Tone Control



DIAL CORD DRIVE



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	3.5Meg	0Ω	0Ω	.1Ω	†17KΩ	†17KΩ	150Ω	
V 2	6BE6	22KΩ	4.6Ω	.1Ω	0Ω	†1.8KΩ	†17KΩ	1.8Meg	
V 3	6BA6	1.5Meg	0Ω	.1Ω	0Ω	†1.8KΩ	†17KΩ	150Ω	
V 4	6AV6	6.8Meg	0Ω	.1Ω	0Ω	320KΩ	1.5Meg	†220KΩ	
V 5	6V6GT	INF	.1Ω	†365Ω	†1.8KΩ	220KΩ	INF	0Ω	330Ω
V 6	0Z4	0Ω	INF	350Ω	INF	370Ω	INF	5Meg	5Meg

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 8 OF V6

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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CORONADO
MODEL 35RA33-43-8145

PROPERTY OF
CORONADO

CORONADO
MODEL 35RA33-43-8145

TRADE NAME	Coronado Model 35RA33-43-8145
SUPPLIER	Gamble-Skogmo, Inc., 15 N. 8th. St., Minneapolis, Minn.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 (or) 12AT6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1) Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1630KC	"	"	A5	Adjust for maximum output. If range of A5 is insufficient adjust trimmer on opposite end of stator plates.
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

To set pointer turn tuning gang fully closed and set dial so that index mark on cabinet falls midway between the numerals of "55".

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PARTS LIST AND DESCRIPTIONS

CORONADO MODEL 35RA33

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		CORONADO PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3A	Det-AVC-AF Amp.	12AV6	12AV6	7BT	
B	Det-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150	C50-30-1.5	PRS150/50-30		EDL5315		2N520	TVA-2450	Red
B	30	150								Green
C2	.05	400	C052	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C3	.02	600	C026	P688-02	DD-203	PTE6S2		PT6S2	6TM-S2	
C4A	100		♦CR1	SI100	♦PC50	TM5T1	♦1403-01	UC-531	♦100C1	
B	100			SI100		TM5T1		UC-531		
C5	5000		C0055D	BPD-005	D6-502	TM5D5	GP2-333-502	UC-525	5HK-D5	
C6A	5000									
B	250		†PC-70		†PC70		†1406-01			
C										
C7	.05	400	C054	489ZX-05		PTE4S5		PT415	4TM-S5	
C8	.1	400	C14	P488-1		PTE4P1		PT401	4TM-P1	

♦ Items C4A, C4B, R5 are combined in one unit.
† Items C6A, C6B, C6C, R7A, R7B are combined in 1 unit.
When replacing items separately items C6B and C6C should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CORONADO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1Meg	½	VRT67H	Q13-137	AG-63-Z	BSK-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

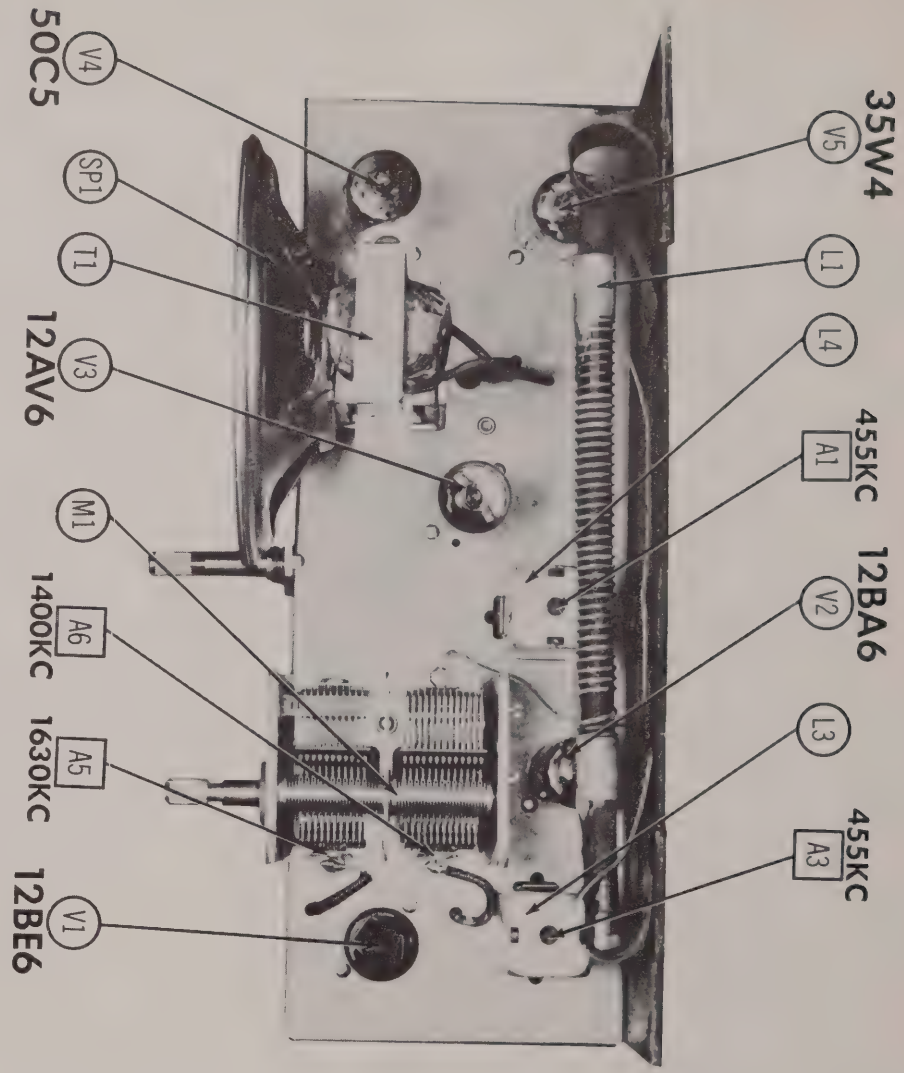
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CORONADO PART No.	IRC PART No.	
R2	22KΩ	½	R223.5	BTS-22K	
R3	390Ω	½	R391.5	BTS-390	
R4	1Meg	½	R105.5	BTS-1Meg	
R5	47KΩ	½	■ CR1	BTS-47K	
R6	10Meg	½	R106.5	BTS-10Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CORONADO PART No.	IRC PART No.	
R7A	500KΩ	½	†PC-70		
B	500KΩ	½			
R8	150Ω	½	R151.5	BTS-150	
R9	1000Ω	1	R1021	BTA-1000	

■ Items R5, C4A, C4B are combined in one unit.
† Items R7A, R7B, C6A, C6B, C6C are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		CORONADO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.6KΩ	3.5Ω	179Ω	.45Ω	Part of speaker	A-3332	A-3025	RO-302①	S-1X①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	CORONADO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.5Ω	7172		4A07R	

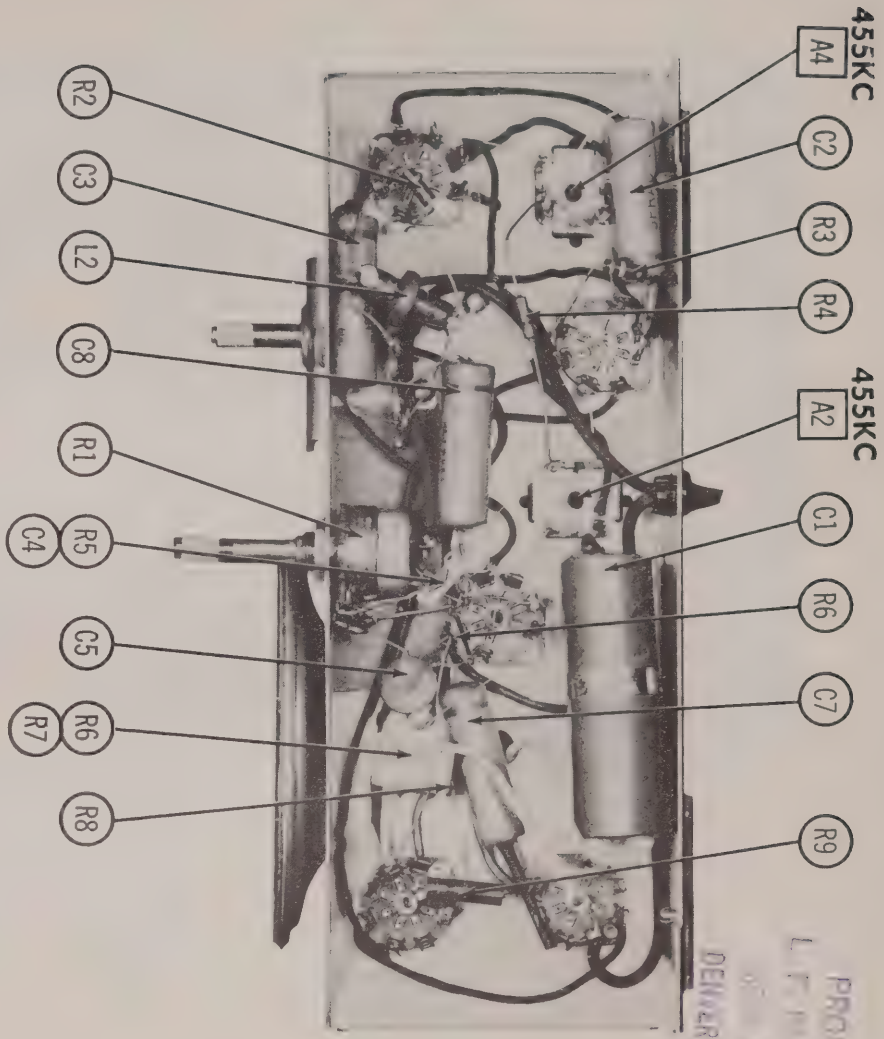
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.6Ω		LT-71				
L2	Osc. Coil	5.5Ω		LOT-67-1			69-OSC *	Tapped@ .7Ω
L3	Input IF	18Ω	18Ω	T114-7	16-6758	BC-352	12-C1	
L4	Output IF	18Ω	18Ω	T114-7	1606758	BC-353	12-C2	

MISCELLANEOUS

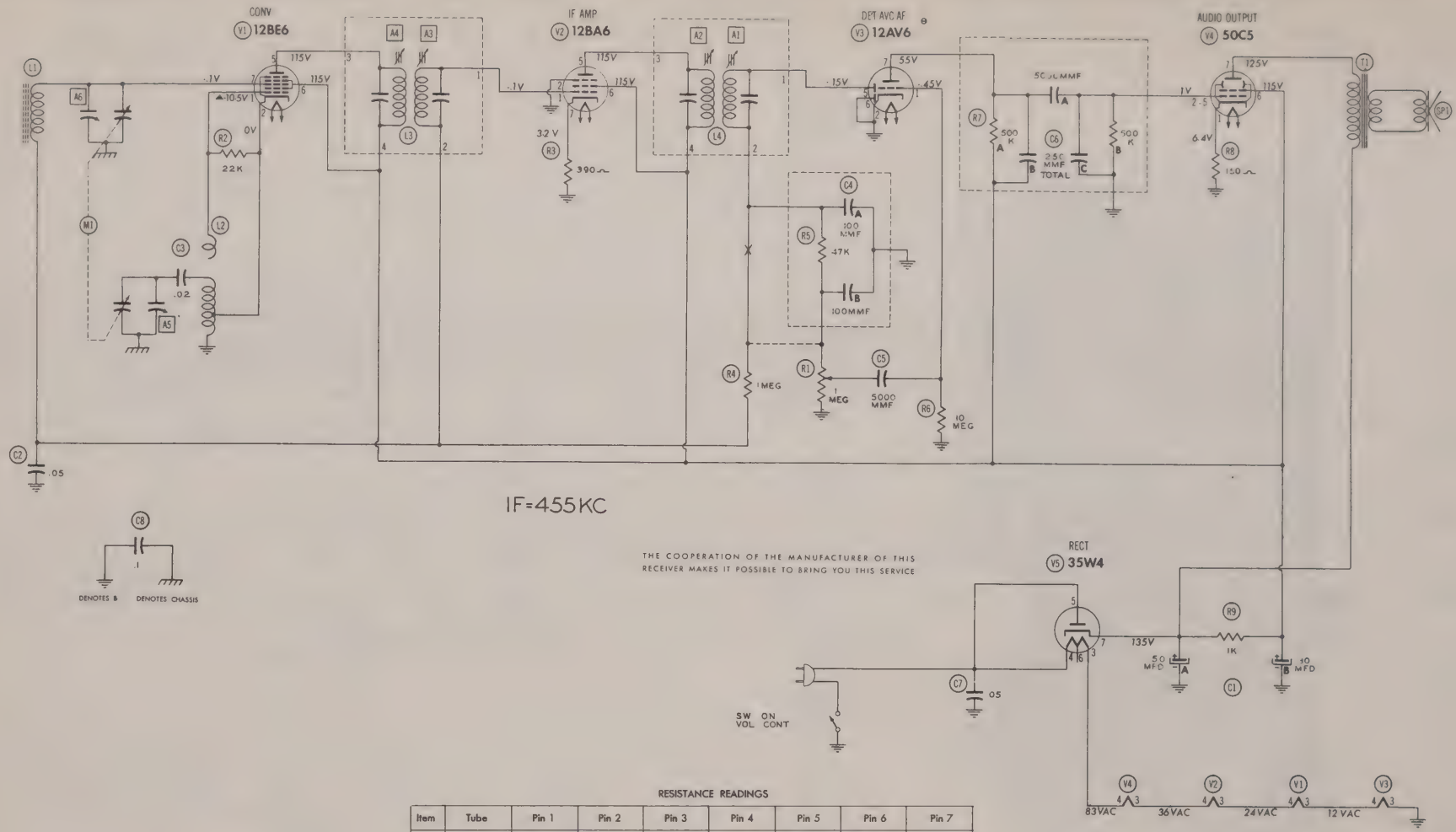
ITEM No.	PART NAME	CORONADO PART No	NOTES
M1	Tuning Cap.	VCT-71	35-432MMF, 37-220MMF
	Cabinet	P2101	Black
	Cabinet	P2101-R	Red
	Knob	P2104	Tuning
	Knob	P1704-1-2	Off/on/volume

CHASSIS—BOTTOM VIEW



PROPERTY OF
DENVER, COLORADO

CORONADO
MODEL 35RA33



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.7Ω	12Ω	24Ω	†1.2KΩ	†1.2KΩ	2Meg
V 2	12BA6	2Meg	0Ω	24Ω	36Ω	†1.2KΩ	†1.2KΩ	390Ω
V 3	12AV6	10Meg	0Ω	0Ω	12Ω	1Meg	0Ω	†500KΩ
V 4	50C5	150Ω	500KΩ	36Ω	85Ω	500KΩ	†1KΩ	†180Ω
V 5	35W4	INF	INF	85Ω	120Ω	120Ω	115Ω	800KΩ

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V5

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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224-7

1- DC voltage measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt.
2- Socket connections are shown as bottom views.
3- Measured values are from socket pin to common negative.
4- Line voltage maintained at 117 volts for voltage readings.
5- Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6- Volume control at maximum, no signal applied for voltage measurements.

PROPERTY OF
L. I.
DENVER, COLORADO

FIRESTONE
MODELS 4-A-113, 4-A-114

FIRESTONE
MODELS 4-A-113, 4-A-114

TRADE NAME	Firestone Models 4-A-113, 4-A-114 (Code 334-3-5A3C)
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Pkwy., Akron, Ohio
TYPE SET	AC Operated Radio-Phono Combination Superheterodyne Receiver with 3 Speed Automatic Record Changer
TUBES (Six)	Type 6BA6 RF Amp., 6BE6 Conv., 6BA6 IF Amp., 6AV6 Det.-AVC-AF Amp.,6AQ5 Audio Output, 6X4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles
RATING	.28 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust for maximum deflection.
2.	"	High side to pin 1 (grid) of 6BA6 (V1). Low side to chassis.	1620KC	"	"	A5	"
3.	50MMF	High side to external antenna terminal. Low side to chassis.	1400KC	Tune to 1400KC signal	"	A6, A7	Rock tuner thru 1400KC signal and adjust for maximum deflection. If necessary, set pointer to 1400KC on the dial.

FOR SERVICE INFORMATION ON RECORD CHANGER UNIT - SEE V-M MODEL 950-PHOTOFACT SET 107 - FOLDER 13 OR RECORD CHANGER MANUAL CM-3.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		FIRESTONE PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BA6	6BA6	7BK	
V4	Det-AVC AF Amp.	6AV6	6AV6	7BT	
V5	Audio Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTE
	CAP.	VOLT	FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	■40	200	45X381	AFH3-89		BO24		FP221	TVL-2460	
B	▲40	150				BR202A		TC26	TVA-1205	
C	20	25								
C2	.05	200	RCP16W2503M	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	.05	200	RCP16W2503M	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C4	.02	200	RCP10W2203M	P488-02	DD-203	PJ2S2		PT412	2TM-S2	
C5	500		47X508	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C6	33		47X612	SI33N750	TCN-33				5TCU-Q33	
C7	.05	200	RCP16W2503M	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C8	.05	200	RCP16W2503M	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C9A	50		*76X1	*PA99	*PC52		*1403-03		*100C3	
B	50									
C10	.05	200	RCP16W2503M	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C11	68	500	47X471	SI68	D6-680		GP1K-680	UC-5468	5GA-Q68	
C12	.02	200	RCP10W2203M	P488-02	DD-203	PJ2S2		PT412	2TM-S2	
C13	.005	600	RCP10W4502M	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C14A	250		♦76X5	♦PA-112-3	♦PC80		♦1404-01		♦102C1	
B	10000									
C15	.1	200	RCP10W2104M	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C16	.001	600	RCP10W6102M	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C17	.01	200	RCP10W2103M	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	

* Items C9A, C9B and R13 combined in one unit.
♦ Items C14A, C14B, R14A and R14B combined in one unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	36X372	Q18-133X	AK-81		UT-429	Volume
B	Shaft		Not Req.	Not Req.	KSS-3		Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWA		US-26	Attach to R1A
R2A	500KΩ	½	40X310	Q13-133	AG-60-Z	BSK-60	U-48	Tone
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R2A

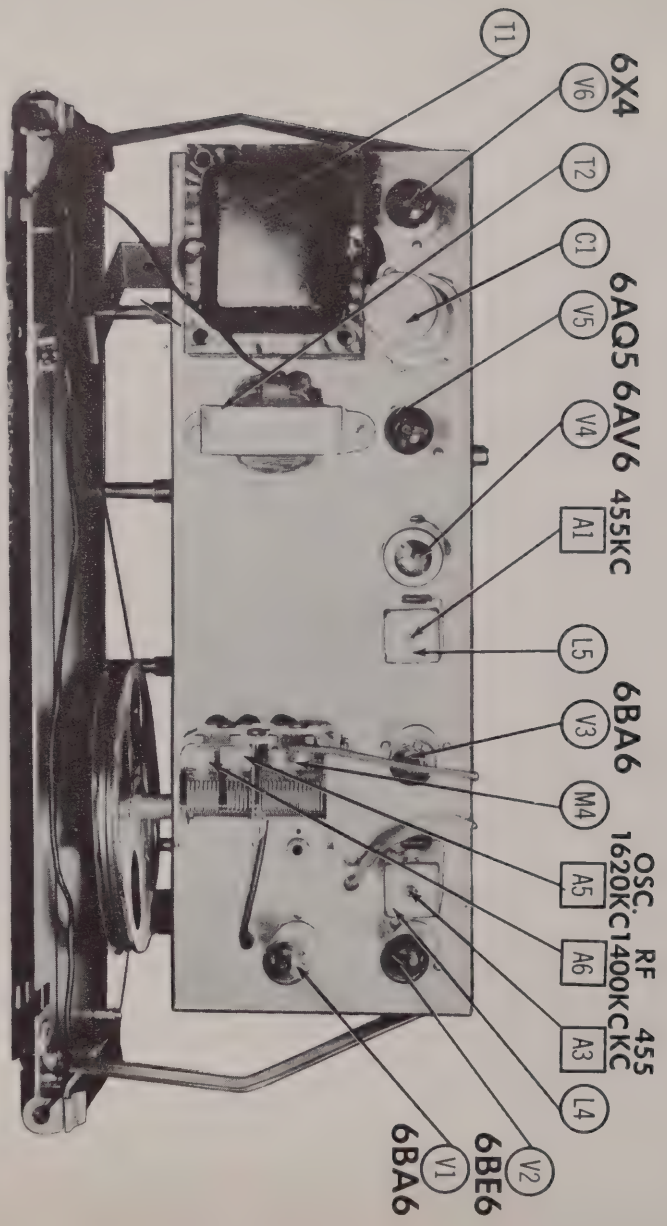
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R3	100Ω	½	B84101	BTS-100	
R4	56KΩ	½	B84563	BTS-56K	
R5	10KΩ	½	B84103	BTS-10K	
R6	100K	½	B85104	BTS-100K	
R7	47Ω	½	B84470	BTS-47Ω	
R8	22KΩ	½	B85223	BTS-22K	
R9	1000Ω	½	B84102	BTS-1000	
R10	330Ω	½	B84331	BTS-330	
R11	2.2Meg	½	B85225	BTS-2.2Meg	
R12	47KΩ	½	76X1	BTS-47K	Note 1

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R13	270KΩ	½	B84274	BTS-270	
R14A	500KΩ	½	76X5	BTS-500K	Note 2
B	500KΩ	½		BTS-500K	
R15	270Ω	½	B84271	BTS-270	
R16	47KΩ	½	B85473	BTS-47K	
R17	15KΩ	½	B84153	BTS-15K	
R18	10Meg	½	B85106	BTS-10Meg	
R19	1.8KΩ	1	C85182	BTA-1.8K	
R20	820Ω	1	D84821	BTA-820	

Note #1 Items R13, C9A, C9B are combined in one unit.
#2 Items R14A, R14B, C14A, C14B are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @.28A	336VCT .046ADC	6.3VAC @ 2.56A		53X291				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		FIRESTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	5.6KΩ	3.7Ω	440Ω	.75Ω	51X134	A-3877①	A-2930 ①	RO-9 ①	S-3X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	8"	PM	3.7Ω	C-12A477	ST-115 Mod. P8-V	8A21	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	FIRESTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	.1Ω	.9Ω	9A2152				Tapped @6 .5Ω
L2	RF Coil	10Ω		9A2289				
L3	Osc. Coil	.6Ω	7Ω	9A2113			71-Osc.	
L4	Input IF	11Ω	13Ω	9A2112	16-6758	BC-352	12-C1	
L5	Output IF	14Ω	24Ω	9A2063	16-6758	BC-353	12-C2	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	FIRESTONE PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	P-77V	ACD-J	A-1 or A-3	W22AB	A65MG A62A	96	0-1 or S-1 & 0-3 or S-3	

ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

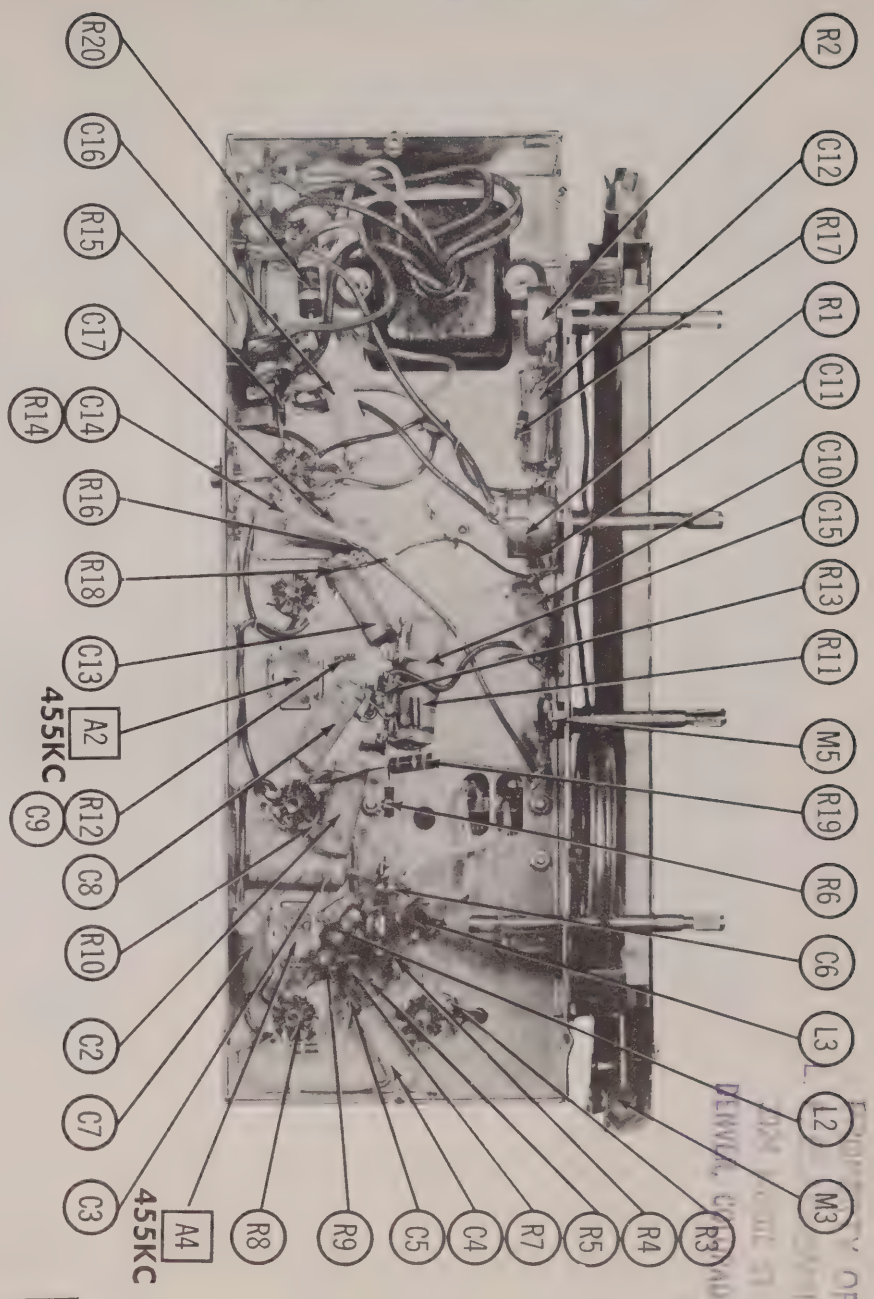
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	FIRESTONE PART No.	WALCO PART No.	JENSEN PART No.	
M2	85-16 85-18	W-30S or W-30A & W-30MGS or W-30MGA	JP-30 or JPS-30 & JPS-30LP or JP-30LP	

MISCELLANEOUS

ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M3	Dial Light	7A103	#47 (2 used)
M4	Tuning Cap.	14A213	(24-472MMF, 14-240MMF, 13-115MMF)
M5	Switch	2A405	Radio-Phono Function
A7	Trimmer Cap.	17A235	Antenna trimmer (2-24MMF)
	Knob	10A765	4 used
	Dial Glass	58X766	

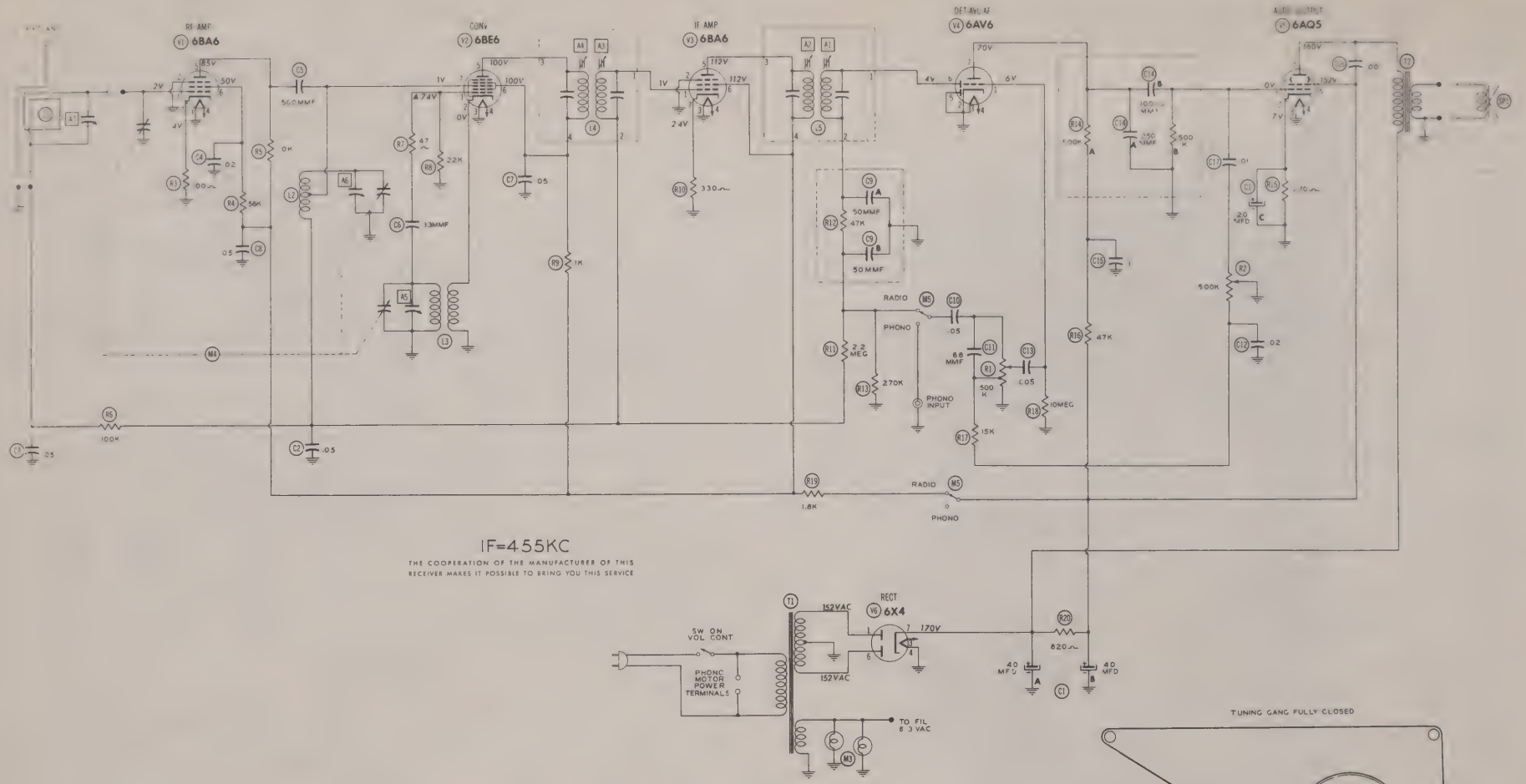
CHASSIS—BOTTOM VIEW



SET 224 FOLDER 8

FIRESTONE MODEL 4-A-113

FIRESTONE MODEL 4-A-113



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BA6	2.6Meg	0Ω	0Ω	.1Ω	■12.6KΩ	■58.6KΩ	100Ω
V 2	6BE6	22KΩ	.6Ω	0Ω	.1Ω	■3.6KΩ	■3.6KΩ	2.6Meg
V 3	6BA6	2.6Meg	0Ω	0Ω	.1Ω	■2.6KΩ	■2.6KΩ	330Ω
V 4	6AV6	10Meg	0Ω	0Ω	.1Ω	0Ω	317KΩ	■548KΩ
V 5	6AQ5	500KΩ	270Ω	0Ω	.1Ω	■440Ω	■820Ω	500KΩ
V 6	6X4	132Ω	INF	.1Ω	0Ω	INF	142Ω	1Meg

▲ TAKEN WITH VACUUM TUBE VOLTMETER
■ MEASURED FROM PIN 7 OF V6

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W Sams & Co, Inc 1953

224-8

1- DC voltage measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt.
2- Socket connections are shown as bottom views.
3- Measured values are from socket pin to common negative.
4- Line voltage maintained at 117 volts for voltage readings.
5- Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6- Volume control at maximum, no signal applied for voltage measurements.

HALLICRAFTERS
MODEL TW-25 (Runs 1 & 2)

HALLICRAFTERS
MODEL TW-25 (Runs 1 & 2)

TRADE NAME	Hallicrafters Model TW-25 (Runs 1&2)
MANUFACTURER	Hallicrafters Co., 4401 W. 5th Ave., Chicago 24, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det. -AVC-AF Amp, 3V4 Audio Output
POWER SUPPLY RATINGS	105-120 Volts AC-DC (or) 7½ Volts "A" Supply & 90 Volts "B" Supply .15Amp. @ 117 Volts AC (or) 50MA@ 7.5 Volts DC & 13MA@ 90 Volts DC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to Pin 6 (grid) of 1R5 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang half open	Across voice coil	A1, A2 A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	"	"	1620KC	Tuning gang fully open	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	" "	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	600KC	Tune to 600KC signal	"		Adjust for maximum deflection by SLIGHTLY moving coil on loop stick antenna to left or right.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		HALLICRAFTERS PART No.	STANDARD REPLACEMENT		
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det-AVC-AF-Amp.	1U5	1U5	6BW	
V4	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	60	150	45B229	PRS150/50-50		BBRD8415		3N532	R1441	Red
B	40	150								Green
C2	400	15	45C224	PRS15/500		BRH155		TC1505	TVA-1162	
C3	.05	400	46AW503J	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C4	10		47X20CK100J	S110	D6-100		GP1K-100	UC-541	5GA-Q1	
C5	1		47X20CK010C	S11NP0	TCZ-010		NP0K-010		5TCCB-V1	
C6	100		47X25UK101K	S1100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C7	10000		47A224	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C8	10000		47A224	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C9	1000		47B20A102M5	S11000	D6-102	TM5D1	GP2L-202	UC-521	5HK-D1	
C10	10000		47A224	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C11A	150			S1150		TM5T15	GP2K-151	UC-5315	5GA-T15	
B	2000			BPD-002		TM5D2	811-002	DC-522	5HK-D2	
C	10000		*49C022	BPD-01	*PC-160	TM5S1	811-01	DC-511	5HK-S1	
D	150			S1150		TM5T15	GP2L-151	UC-5315	5GA-T15	
E	5000			BPD-005		TM5D5	811-005	DC-525	5HK-D5	
C12	.25	200	46AT254J	P288-25		PTE4P25		PT4025	2TM-P25	
C13	10000		47A224	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C14	.2	600	46AX104J	P688-2		PTE6P2		PT602	6TM-P2	Note 2
C15	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C16	5		47X20CK050C	S15	D6-050		GP1K-050		5GA-V5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Hallicrafters PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1Meg	½	25B1005	Q13-137	AG-63-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWB-2	Not Req.	US-27	Attach to R1A

* Items C11A, C11B, C11C, C11D, C11E and R8A, R8B, R8C, and R8D are combined in one unit.
Note 2. Some Models use a .1MFD @ 600V in this application.

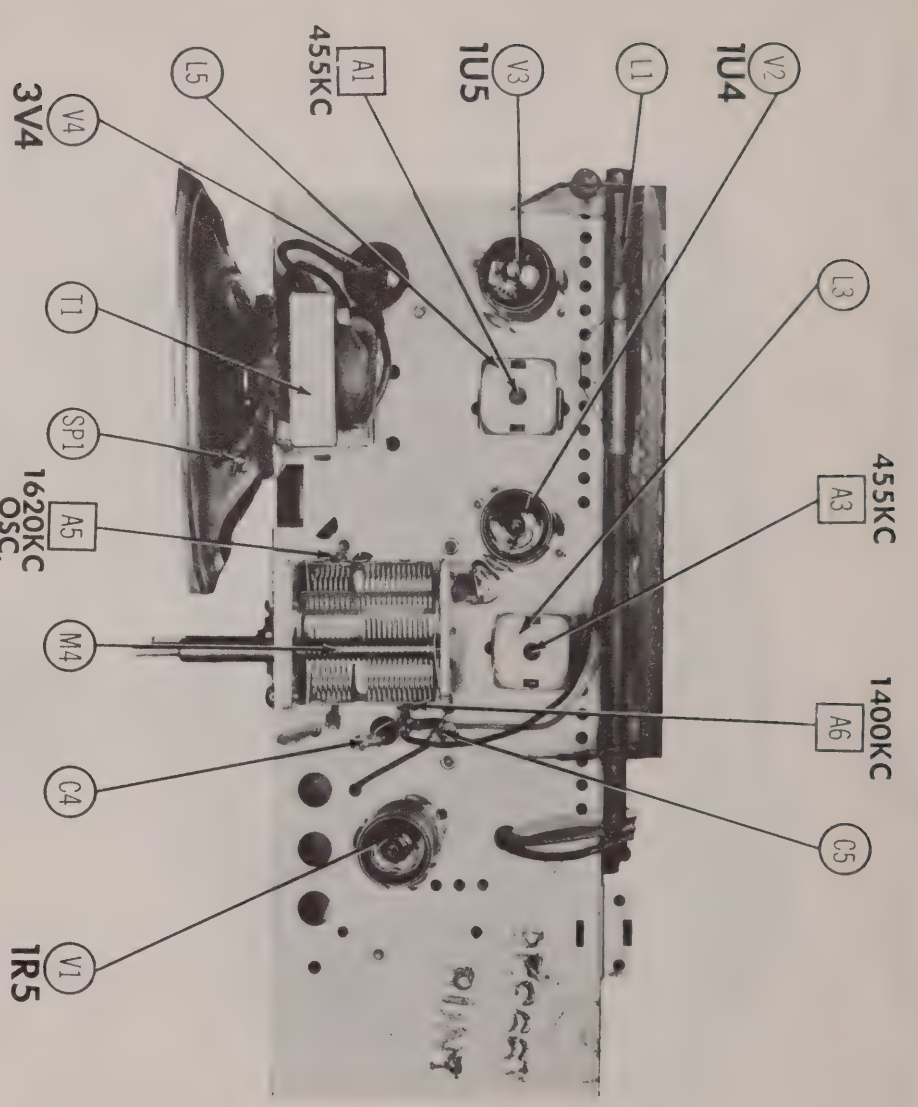
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Hallicrafters PART No.	IRC PART No.	
R2	100KΩ	½	23X20X104K	BTS-100K	
R3	2200Ω	½	23X20X222K	BTS-2200	
R4	4.7Meg	½	23X20X475K	BTS-4.7Meg	
R5	18KΩ	½	23X20X183K	BTS-18K	
R6	2.2Meg	½	23X20X225K	BTS-2.2Meg	
R7	2200Ω	½	23X20X222K	BTS-2200	
R8A	10Meg	½		BTS-10Meg	
B	4.7Meg	½	PC-160♦	BTS-4.7Meg	
C	1Meg	½		BTS-1Meg	
D	3.3Meg	½		BTS-3.3Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Hallicrafters PART No.	IRC PART No.	
R9	2.2Meg	½	23X20X225K	BTS-2.2Meg	
R10	1000Ω	½	23X20X102K	BTS-1000	
R11	1000Ω	½	23X20X102K	BTS-1000	
R12	1500Ω	1	23X20X152K	BTA-1500	
R13	2400Ω	8	24B938		
R14	2700	1	23X30X272K	BTA-2700	
R15	47Ω	½	23X20X470K	BTS-47	

♦ Items R8A, R8B, R8C, R8D, C11A, C11B, C11C, C11D, C11E, are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	10KΩ	3Ω	410Ω	.4Ω	Part of Spkr.	A-3329	A-2998		S-11X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Hallicrafters PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3Ω	85C129	ST-113 Mod. P4-X	4A07 ①	① Use universal mounting bracket

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Hallicrafters PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.7Ω		57C194			70-Osc.*	
L2	Osc. Coil	1.7Ω	5.5Ω	51B1714	14-1074		12-C1	
L3	Input IF	25Ω	25Ω	50C233	16-6758	BC-352	4624	16.2 Microhenries
L4	Fil. Choke	2.2Ω		53A008				Pri. tapped ⓐ .7Ω
L5	Output IF	25Ω	35Ω	50C516	16-6758 †	BC-353 †	12-C2 †	

* Disregard tap on secondary winding.
† Connect pin 3 of V2 to B+ side of Primary winding.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT	Hallicrafters PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.
M1	.068ADC	27A172	NA5	5M4	1003A	6S75	75

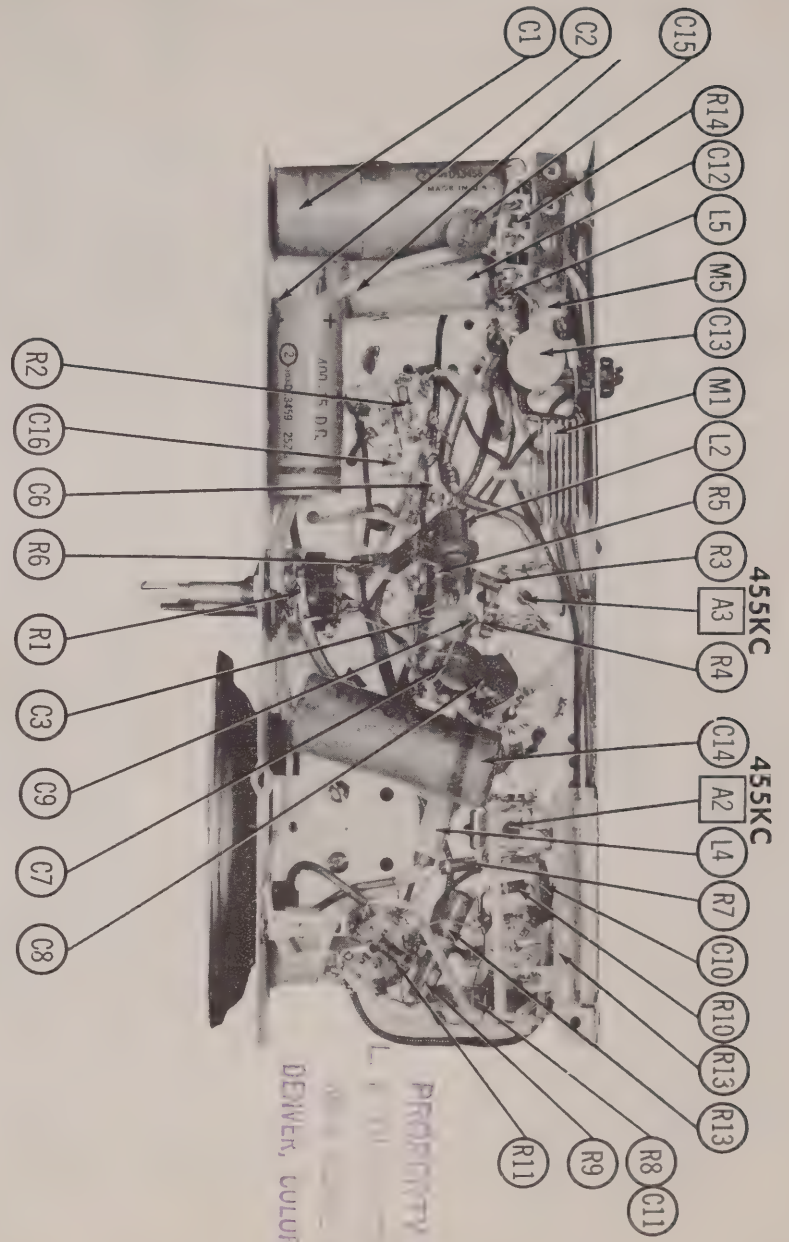
BATTERIES

ITEM No.	VOLTAGE	Hallicrafters PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	7½	P-13	717			C5			
M3	90	P-231		490			N60		

MISCELLANEOUS

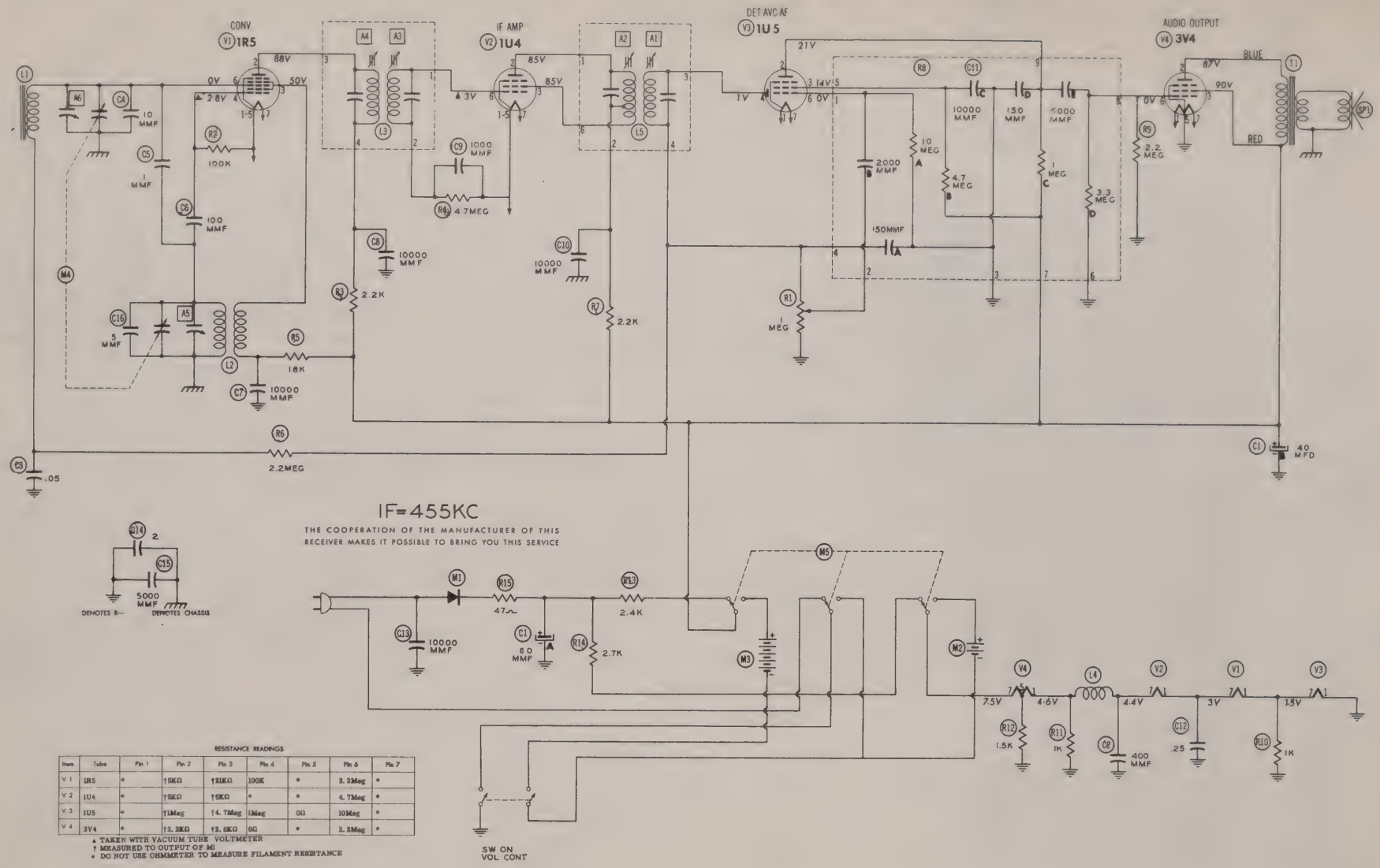
ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M4	Tuning Cap.	48D310	(16-357MMF, 7-130MMF)
M5	Switch	60B502	Power Selector
	Cabinet	78F1046	Less front panel assy.
	Knob	15A655	Tuning-Front
	Knob	15A654	Tuning -Rear
	Knob	15A656	Volume
	Dial Escutcheon	7C463	

CHASSIS—BOTTOM VIEW



PROPERTY OF
DENVER, COLORADO

HALLICRAFTERS
MODEL TW-25



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	•	↑5KΩ	↑21KΩ	100K	•	3.2Meg	•
V 2	1U4	•	↑5KΩ	↑5KΩ	•	•	4.7Meg	•
V 3	1U5	•	↑1Meg	↑4.7Meg	1Meg	0Ω	10Meg	•
V 4	3V4	•	↑2.2KΩ	↑2.5KΩ	0Ω	•	2.2Meg	•

▲ TAKEN WITH VACUUM TUBE VOLTMETER
↑ MEASURED TO OUTPUT OF M1
• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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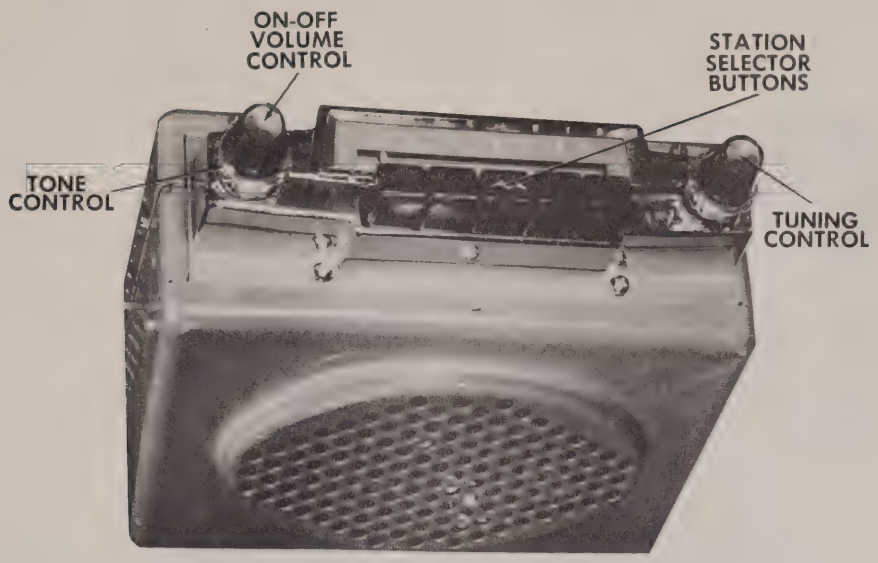
1- DC voltage measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt.
2- Socket connections are shown as bottom views.
3- Measured values are from socket pin to common negative.
4- Line voltage maintained at 117 volts for voltage readings.
5- Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6- Volume control at maximum, no signal applied for voltage measurements.



PROPERTY OF
DENVER, COLORADO

MOTOROLA
MODEL 553

TRADE NAME	Motorola Model 553
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	Battery Operated Universal Type Automobile Superheterodyne Receiver
TUBES (Six)	Types 6BD6 RF Amp., 6BE6 Conv., 6BD6 IF Amp., 6AT6 Det.-AVC-AF Amp., 6AQ5 Audio Output, 6X4 Rectifier
POWER SUPPLY	6 Volt Storage Battery — RATING 5.2 Amp @ 6.3 Volts DC
TUNING RANGE—BROADCAST	540-1605KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	455KC (400~Mod)	High frequency end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum deflection.
2.	See Fig.1	High side thru dummy (Fig.1) to antenna receptacle. Low side to chassis.	1605KC	"	"	A5	"
3.	"	"	1300KC	Tune to 1300KC signal	"	A6, A7	"
4.	If the tuner cores have been tampered with and require alignment the cores should be backed out so they will not affect trimmer adjustments. Adjust trimmer as in steps 2 and 3.						
5.	See Fig.1	High side thru dummy (Fig.1) to antenna receptacle. Low side to chassis.	1180KC	Adjust pointer so that it is 1 1/32" from its high frequency end stop position of 1605KC.	Across voice coil	A10	Adjust for maximum deflection in order given. Repeat steps 2, 3 and 5.
6.	With receiver installed in car and antenna fully extended tune in a weak station near 1400KC and adjust A7 for maximum volume.						
7.	To set push buttons tune manually to desired station and pull first push button to be set all the way out. Check to see that you you are exactly on station and then press push button all the way in. Repeat above procedure for remaining push buttons.						

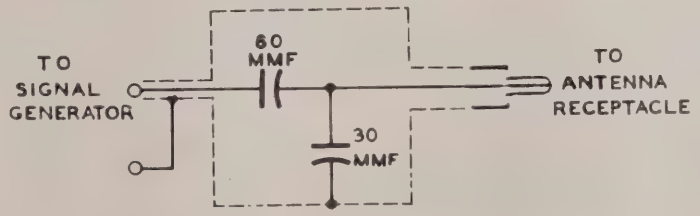


FIG.1

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	RF Amplifier	6BD6	6BD6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BD6	6BD6	7BK	
V4	Det-AVC-AF Amp.	6AT6	6AT6	7BT	
V5	Audio Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■15	350	23A485677	AFH3-104		CO77		FP328	TVL-3630	
B	▲10	350								
C	20	25								
C2	.05	100	8R13514	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C3	90		21A591682							
C4	.006	100	8A4529	P488-006	D6-562	PTE6D6	GP2-333-602	PT626	6TM-D6	
C5	.05	100	8R13514	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C6	4.7		21R115955	SI4.7NP0	TCZ-4.7		NP0K-4R7	ZT-5547	5TCCB-V47	
C7	100		21R120124	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C8	47		21R115890	SI47N750	TCN-47		N750L-470	NT-5447	5TCU-Q47	
C9	400		21A71872							
C10	.05	400	8R14791	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C11	10000		21R482726	BPD-01	DD-103	TM5S1	GP2-333-103	D6-511	5HK-S1	
C12	.006	400	8R71910	P488-006	D6-562	PTE6D6	GP2-333-602	PT626	6TM-D6	
C13	.02	400	8R12690	P488-02	DD-203	PTE4S2		PT412	4TM-S2	
C14	10000		21R482726	BPD-01	DD-103	TM5S1	GP2-333-103	D6-511	5HK-S1	
C15	470		21R115856	SI470	D6-471	TM5T5	GP2K-471	UC-5347	5GA-T47	
C16	.006	400	8K71910	P488-006		PTE6D6	GP2-333-602	PT626	6TM-D6	
C17	.5	100	8K17028	VHC-36		MP2P5		RF480	2TM-P5	
C18	.5	100	8K17028	VHC-36		MP2P5		RF480	2TM-P5	
C19	.03	1000	8K400883	P1088-03		TVC-1053		PT1613	MB-S3	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100KΩ	½	18B522047	QJ-494A *			UF15L	Tone-Panel
B	250KΩ	½	Not Req.				UR254T753	Volume-Tapped ② 75KΩ-Rear
C	Switch		Not Req.				US-26	Attach to R1B

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B11-128, P1-126 (Panel) B18-130X & R1-210 (Rear) & SWITCH 76-1

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R2	1Meg	½	6R6004	BTS-1Meg	
R3	560Ω	½	6R6291	BTS-560	
R4	18KΩ	½	6R5591	BTS-18K	
R5	22KΩ	½	6R6028	BTS-22K	
R6	1Meg	½	6R6004	BTS-1Meg	
R7	82Ω	½		BTS-82	
R8	6800Ω	2	6R5690	BTB-6800	
R9	15KΩ	½	6R6477	BTS-15K	

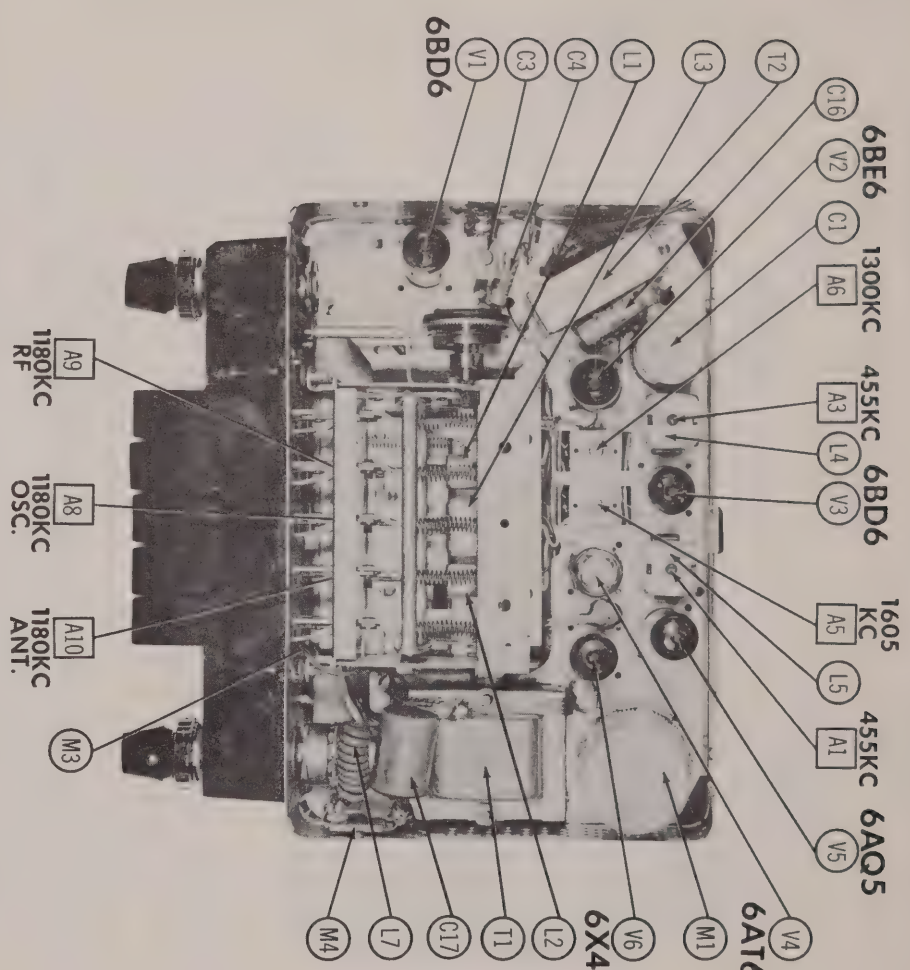
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R10	22Meg	½	6R3927	BTS-2.2Meg	
R11	330KΩ	½	6R6014	BTS-330K	
R12	270KΩ	½	6R6414	BTS-270K	
R13	270Ω	½	6R6432	BTS-270	
R14	2200Ω	2	6R5687	BTB-2200	
R15	56Ω	½	6R5614	BTS-56	
R16	56Ω	½	6R5614	BTS-56	

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	6.3VAC ②3A	450VCT .042ADC			25C501303D		P-3068		V-16K ①

① Drill new mounting holes.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	7.3KΩ	3.3Ω	654Ω	.73Ω	25B502330	A-3878 ①	A-3020	RO-13 ①	S-7X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5 x 7"	PM	3.3Ω	50C522055			

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	13Ω		24K522272				Less core, core Part # 76K522275
L2	RF Coil	13Ω		24K522271				Less core, core Part# 76K522275
L3	Osc. Coil	.8Ω	2.8Ω	24K522270				Less core, core Part # 76K522275
L4	Input IF	17Ω	18Ω	24C485553	16-6758	BC-352	12-C1	
L5	Output IF	18Ω	18Ω	24K485554	16-6770	BC-355	12-C6	
L6	Fil. Choke	0Ω		24A52284	19-3001	TV-189	6175	.4 Microhenry
L7	Fil. Choke	0Ω		24K522091				
L8	Vibrator Hash Choke	0Ω		24A512119				47 Microhenries

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	6.3V	115∿	48B3333	5342	859	5342	

FUSES

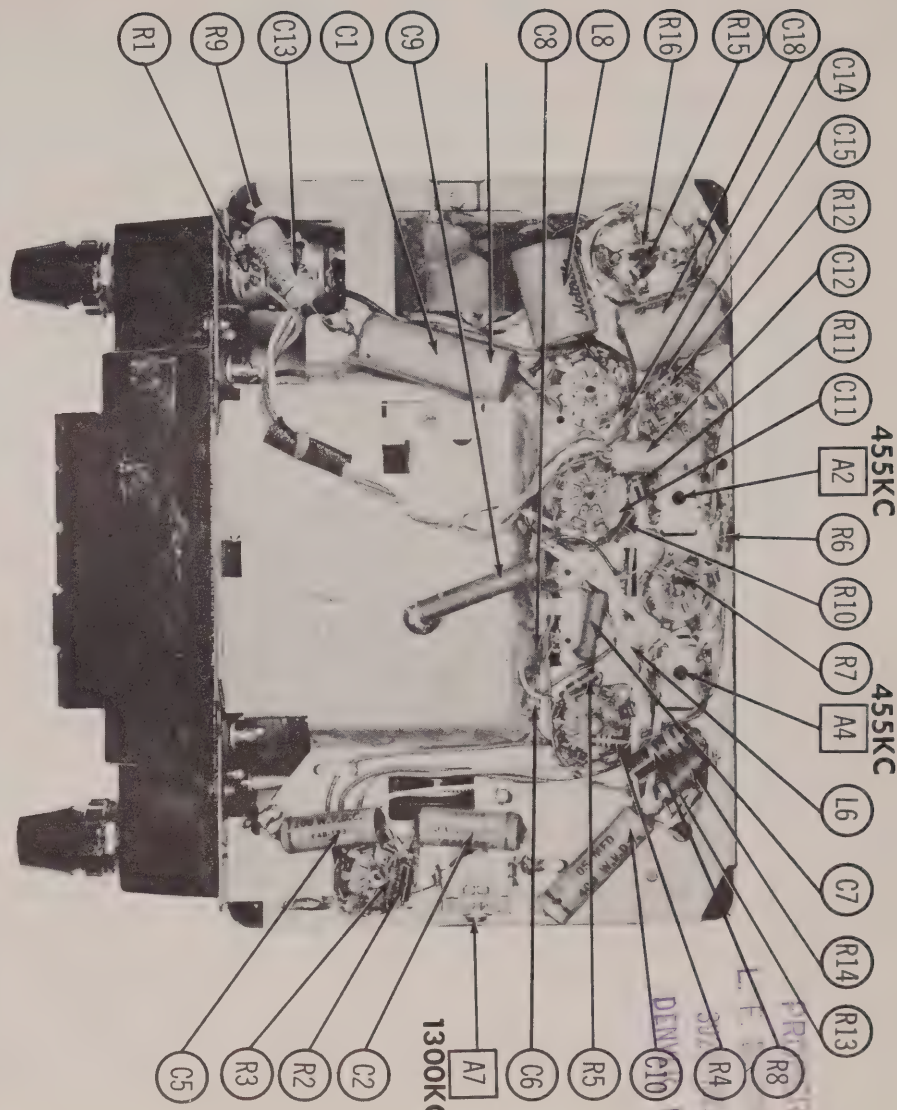
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	9A	65K16248	* 9K592648	307009 (9A-SFE)	155009	SFE9	*HRH

* Includes 19" loop of #14 wire staked and soldered to terminals.

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Dial Light	65X10867	Type #44
M4	Spark Plate	21A522033	
A5	Trimmer Cap.	20A77537	5-280MMF-Osc. Adj.
A6	Trimmer Cap.	20A481526	20-180MMF-RF Adj.
A7	Trimmer Cap.	20A513232	20-180MMF-Ant.Adj. (with bracket)
	Push button	1V522215	4 used (with clip)
	Push button	1V522216	1 used (with monogram & clip)
	Cover	15D522035	Bottom
	Cover	15D522040	Top
	Knob	36B522020	Disc - Tone control
	Knob	36K522022	Disc - Dummy for tuning shaft
	Knob	36B522008	Volume & Tuning (2 used) (with setscrew)
	Dial Scale	34B522007	Glass

CHASSIS—BOTTOM VIEW



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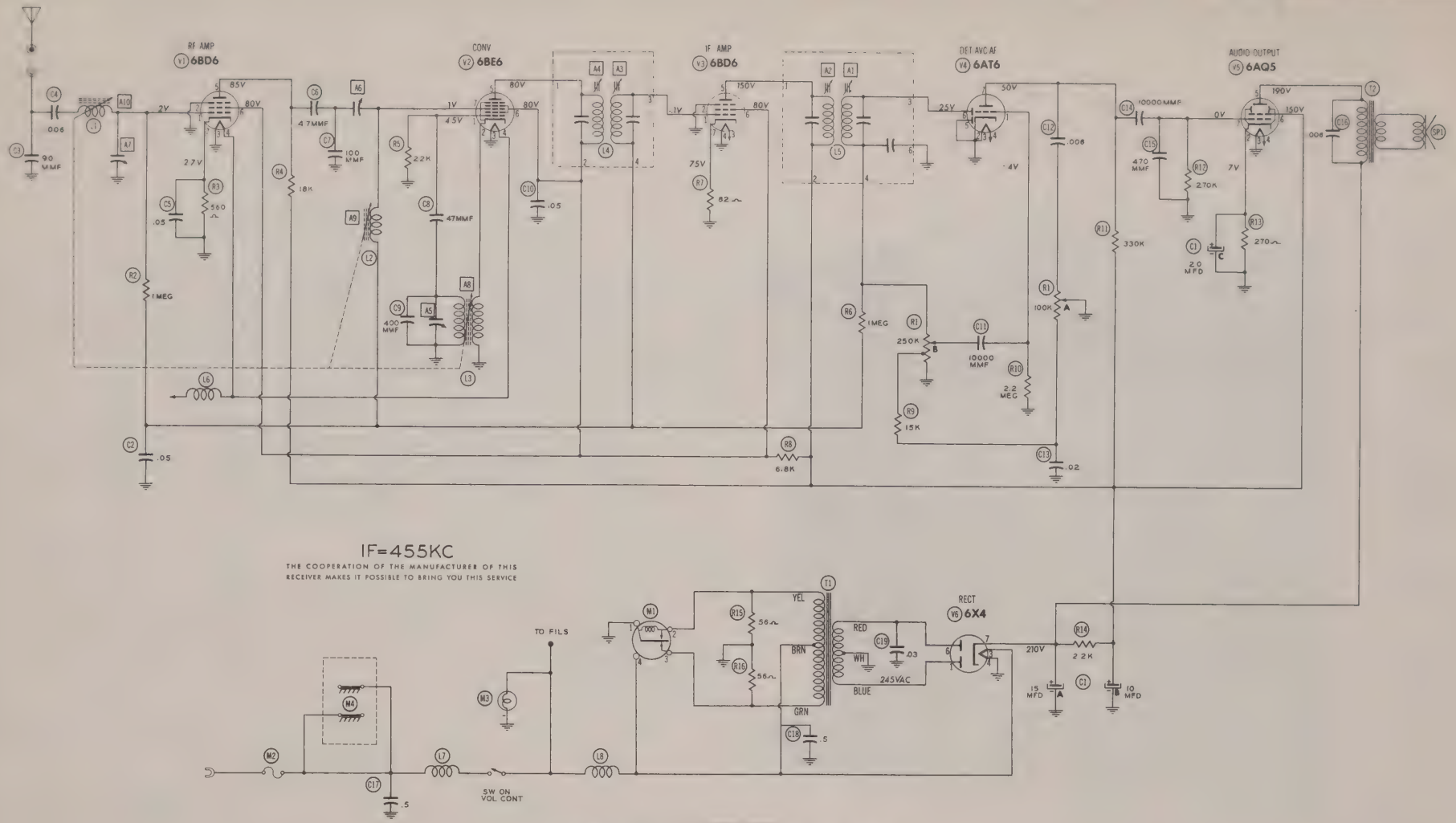
MOTOROLA MODEL 553



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BD6	2.2Meg	0Ω	0Ω	.3Ω	†20.2KΩ	†9KΩ	560Ω
V 2	6BE6	22KΩ	2.8Ω	0Ω	.3Ω	†9KΩ	†9KΩ	1.2Meg
V 3	6BD6	1.2Meg	0Ω	0Ω	.3Ω	†2.2KΩ	†9KΩ	8.2Ω
V 4	6AT6	2.2Meg	0Ω	0Ω	.3Ω	0Ω	150KΩ	†330KΩ
V 5	6AQ5	270KΩ	270Ω	0Ω	.3Ω	†650Ω	†2.2KΩ	270KΩ
V 6	6X4	500Ω	.3Ω	.3Ω	0Ω	INF	500Ω	5Meg

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM PIN 7 OF V6

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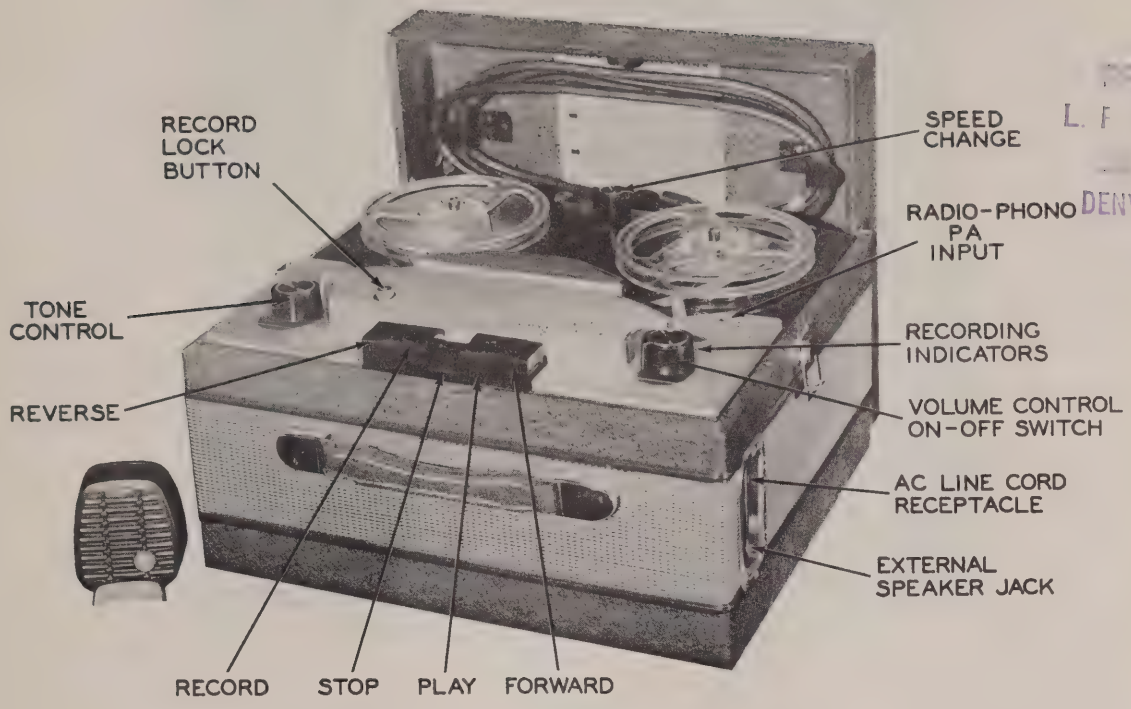
224-10

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Battery voltage maintained at 6.3 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage mesurements.

RCA
MODEL SRT-301 (MI-15910)



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GENERAL INFORMATION

This RCA Push-Button Tape Recorder features fingertip operation for Fast Forward, Playback, Stop, Record and Fast Reverse. The RCA is designed to record and play back two tracks of material on standard width recording tape, which doubles the playing time of a standard 5" or 7" reel of tape with no loss of frequency response or quality. Recordings can be made from a radio, television receiver or phonograph, in addition to those made directly from the microphone. Recordings can be played back through the self-contained speaker or an external speaker through use of the Auxiliary Speaker Jack.

This recorder has two tape speeds, 7 1/2" and 3 3/4" per second. Using both tracks of the tape the recording time is as follows:

SIZE	SPEED 3 3/4	SPEED 7 1/2
5" reel	1 hour	1/2 hour
7" reel	2 hours	1 hour

The Model SRT-301 is designed to operate on 60 cycle, 115 volt, AC supply.

CAUTION: Severe Damage Will Result if Connection is Made to a Direct Current (DC) Line.

Manufactured by:

Engineering Products Dept.
Radio Corp. of America
Camden, N. J.

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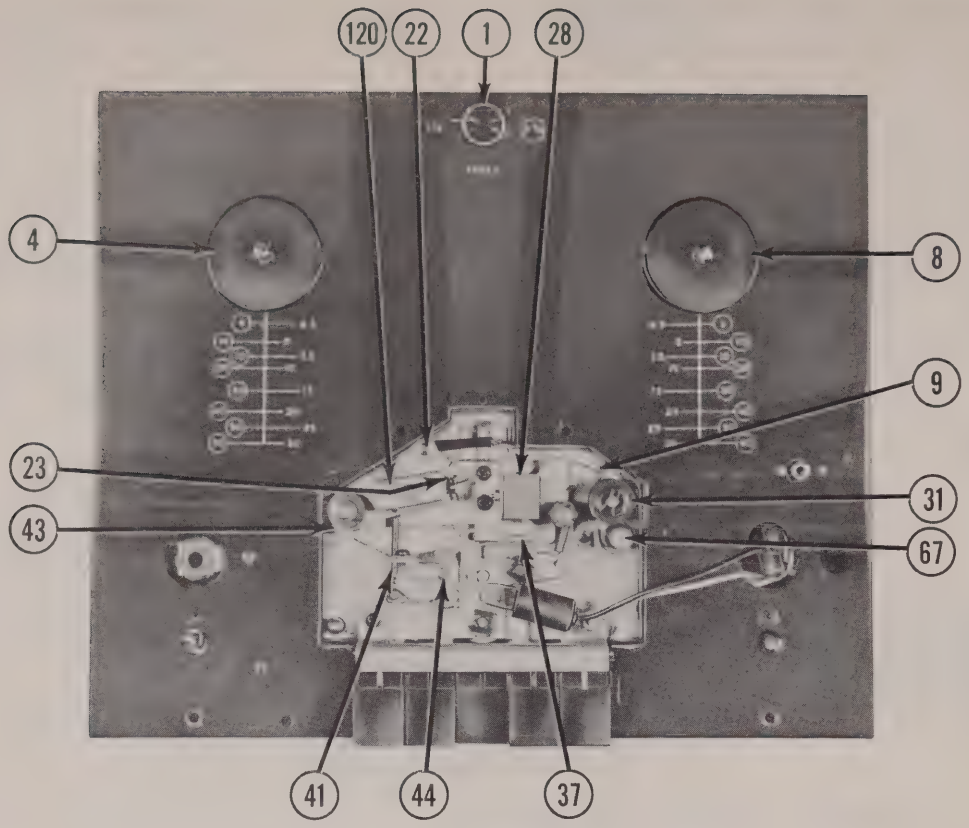

Figure 2.

OPERATING INSTRUCTIONS

1. With the "Stop" button depressed, insert the AC power cord into the receptacle at the right side of the cabinet (Figure 1).

2. Plug the AC cord into a convenient wall receptacle of the proper rating.

Threading the Tape -

1. Place a reel of tape on the left spindle (4) and an empty reel on the right spindle (8) making sure the reel slots engage the reel pin on the spindles.

2. Unwind about 14" of the tape from the reel. Hold a section of the tape straight with both hands and insert the tape in the tape slot making sure the dull coated side of the tape faces the rear of the recorder.

NOTE: This recorder uses Type "A" wound tape, i.e. the dull magnetic coated side faces inward on the reel. If the tape to be used is Type "B" (coated side facing outward) place the reel on the left spindle so that the tape will lead-off in a clockwise direction. Bring the tape behind the rear cover (5) (not through the head slot) and thread it on to the right reel in the normal manner. Press the "Forward" button and allow the full reel of tape to wind on the empty reel. The dull side of the tape will now be facing inward on the reel.

3. Insert the free end of the tape through the hub of the right take-up reel and place a pencil firmly over the tape, forcing it into one of the three radial slots on the hub of the empty reel. Turn the reel several turns with the pencil in this position until the tape is secured to the reel and all slack is taken up between the reels.

To Record From Microphone -

1. Turn the On-Off Volume Control to the right until a click is heard and allow about thirty seconds for the unit to warm up. The pilot light located above the "Stop" button will glow when the unit is turned on.

2. Insert the microphone plug into the "Microphone Input Jack".

3. Turn the speed control knob (1) to the desired speed.

NOTE: Recordings made at a certain speed must be played back at that speed.

4. Press record lock button (18) downward with the left hand. This releases the record safety lock which prevents accidental erasure.

5. Depress the "Record" key with the right hand (while holding the record lock button (18) with the left hand) until it latches.

6. While talking into the microphone, adjust the "Volume" control until the "Normal" indicator flashes and no flashing occurs at the "Overload" indicator.

NOTE: Correct recording volume is very important. Too weak a signal, which does not cause the "Normal" indicator to flash, will result in weak playback and high background noise.

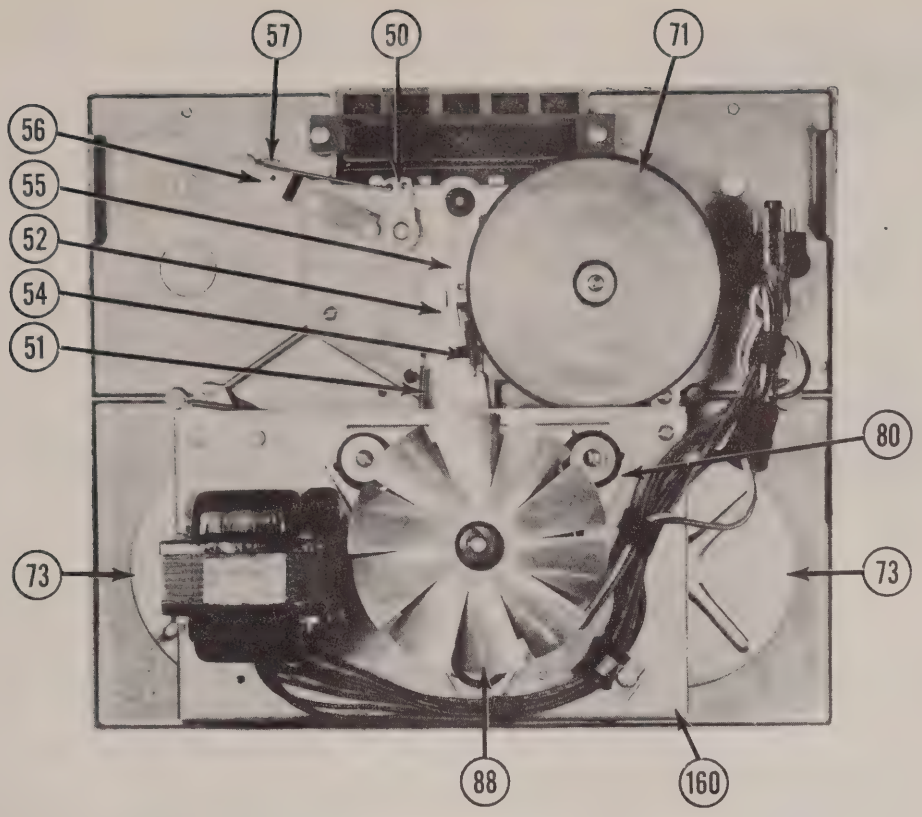

Figure 3.

Too strong a signal, causing the "Overload" indicator to flash, will result in distortion during playback.

To Record From External Radio-

Recordings can be made from a radio by placing the microphone near the loudspeaker of the radio; however, this type of recording may not be satisfactory as other sounds may be picked up by the microphone which as a result will be recorded on the tape. A superior quality recording can be made by use of the radio-phono attachment cord. Connect attachment cord as follows:

1. Connect the cord clips across the voice coil terminals on the radio speaker as shown in Figure 4.

2. Insert the cord plug into the "Radio, PA, Phono Jack".

3. Proceed as described in "To Record From Microphone".

NOTE: Remove attachment cord after recording is completed.

To Record From Phonograph -

1. Connect the cord clips of the attachment cord to the pickup leads on the external phonograph.

2. Insert the attachment cord plug into the "Radio, PA, Phono Jack".

3. Proceed as described in "To Record From Microphone".

NOTE: Should a hum develope from the above connection, reverse the cord clips on the pick-up leads.

To Record From Television Receiver -

1. Connect attachment cord as described in "To Record From External Radio" and proceed with recording as described in "To Record From Microphone".

NOTE: The Tone Control does not operate during recording. When recording from radio or a television receiver set the radio or television tone control for maximum treble.

Dual Track Recording -

The RCA is designed so that 1/2 the tape width is recorded at a time; thereby resulting in two track recording. This two track operation is accomplished in the following manner:

1. After a reel of tape has been recorded, i.e. all of the tape wound on to the take-up reel, depress the "Stop" push button. This stops all movement of the tape.

2. Remove the reels from the recorder, turning the full reel over and placing it on the left spindle and the empty reel on the right spindle.

3. Properly thread the tape and proceed with the recording as in "To Record From Microphone".

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Figure 4.

4. After this track has been recorded the first track of recording is ready to be played without rewinding.

(a) Place the full reel of tape on the feed reel (left) spindle and the empty reel on the take-up (right) spindle.

(b) Thread the tape making sure the dull side of the tape faces the record head.

(c) Set the controls as described under "To Play a Recording".

To Play a Recording -

1. Thread the tape as described under "Threading the Tape".

2. Turn the On-Off Volume control on and allow thirty seconds for the tubes to warm up.

3. Depress the "Play" button until it is latched into position.

4. Adjust the Volume and Tone control to suit.

To Use an External Speaker -

Any size speaker of the permanent magnet type, having a 3 ohm voice coil, may be used by connecting a speaker extension cord acorss the voice coil of the speaker and then inserting the extension plug (same type as micorphone plug) into the External Speaker Jack located on the right side of the cabinet. This automatically cuts out the self-contained speaker.

To Edit and Splice Tape -

NOTE: Since it is impossible to edit and splice one track without affecting the other, recordings which are to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections, etc. Unused sections of tape can be spliced together for re-use.

2. For best results, cut tape at a slight diagonal, join ends together with splicing tape on the glossy side and trim off any excessive width.

Fast Forward and Fast Rewind -

High-speed forward or reverse wind can be obtained by pressing the desired button. These are used primarily in locating a desired portion of a recording in a few seconds.

CAUTION: The "Stop" button should always be depressed before changing functions or speeds. Always depress the "Stop" button when the recorder is not in use.

Erasing Recorded Material -

Erasing of recorded material takes place automatically when new material is recorded; therefore, no special step is necessary to erase recordings before new recordings are made. However, if a portion of a recording or an entire reel of tape is to be completely erased, do so as follows:

1. Properly thread the tape on the machine.

2. Turn the Volume control knob clockwise until a click is heard. This turns the recorder on.

3. Press down on the Record button until it latches into position. The erasing of recorded material is now in process and may be stopped at any time by depressing the "Stop" button.

NOTE: Only one track of recorded material is erased at a time. To erase the second track, reverse the reels and repeat the above operation.

To Use Recorder as a Public Address System -

The recorder may be used for public address with or without recording the material at the same time. Plug in an external speaker as described in "To Use an External Speaker". Turn the recorder on and depress the Record button, but do not use tape. Be careful to maintain sufficient distance between the microphone and the external speaker to prevent feedback howl. If it is desired to record the program, thread the tape as previsouly described before depressing the Record button.

ADJUSTMENTS

Disassembly Instructions -

1. Remove two Phillips head screws from rear of case.

2. Remove push-on type volume and tone control knobs.

3. Remove two screws located under volume and tone control knobs. Remove escutcheon.

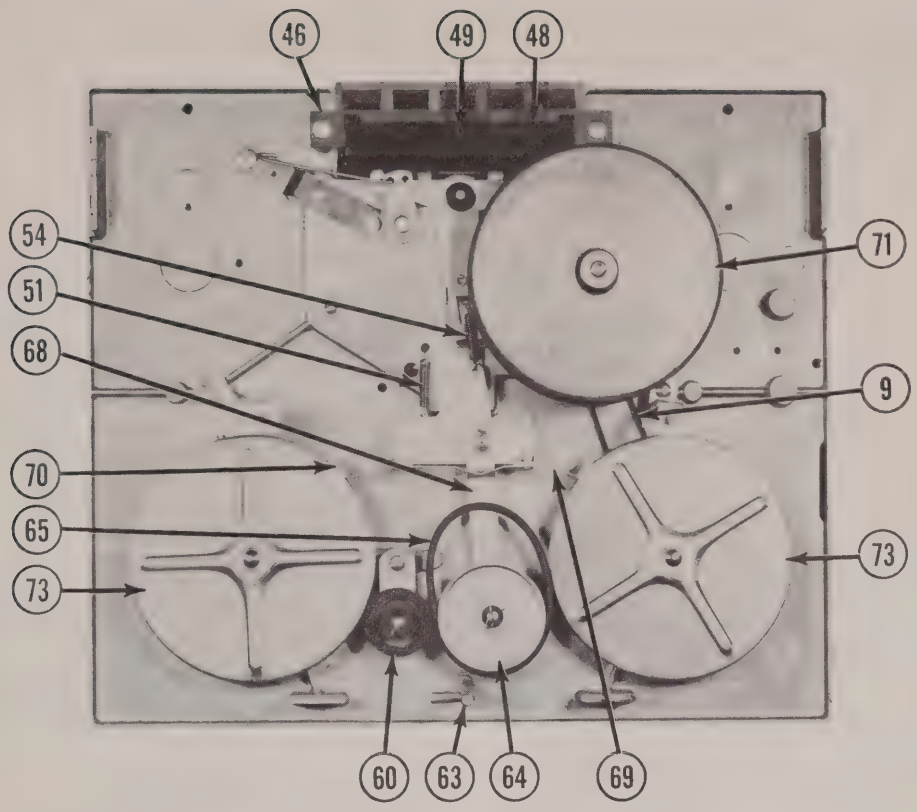

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Figure 5.

4. Remove two hex head screws located under escutcheon.

5. Lift unit out of case, removing leads from speaker before removing unit completely.

Record-Play Head Adjustment
(See Exploded View) -

To adjust the record-play head (28) for maximum frequency response, make the following adjustment:

1. Remove the rear cover escutcheon (5).

2. Properly thread an alignment tape or a good recorded tape on the machine.

3. Set the controls as described under "To Play a Recording".

Grip the vertical portion of the record head mounting bracket with a pair of long-nosed pliers. Rock the mounting bracket and record head from side to side slightly until the maximum high frequencies are obtained. Bend the bracket with the pliers to obtain a permanent set at this position.

4. Replace the rear cover excutcheon (5).

Pressure Pad Adjustment (See Exploded View) -

1. Remove the front and rear escutcheons (5 and 11).

2. Depress the "Play" button. Do not turn the recorder on.

3. Use a pencil type postal scale and check the amount of pressure necessary to just pull the pad away from the tape. The test should be made on the end of the pressure pad mounting spring (37). Adjust the pressure pad for 1-3/4 oz. $\pm$ 1/4 oz. pressure.

(a) The record-head pressure pad is adjusted by the locked adjustment screw (44).

(b) The guide post pressure pad (43) is adjusted by bending the pressure pad spring. It must be adjusted for minimum pressure against the tape.

4. After the adjustments are made depress the "Stop" button and replace the trim covers.

Erase Head Adjustment -

1. With tape properly threaded, turn recorder on and depress the Record button. Allow tape to run for a few seconds then turn recorder off, but leave Record button depressed.

2. With the trim covers removed check the erase head (120), see Figure 2, to see if it is parallel with the tape, if not loosen screw (22) just enough so the head can be pivoted and align it with the tape then tighten the screw.

CAUTION: Make sure the head retracting spring (24), see Figure 6, remains in front of the erase head while adjusting it.

3. Check to see if the top edge of the tape coincides with the top end of the diagonal slot in the erase head (junction of long diagonal slot and short vertical slot). To adjust level of tape, loosen lock nut (20), see Figure 6, and rotate tape guide post (21) to move tape up or down. Tighten lock nut (20).

4. After this adjustment has been made, check to see if the tape moves forward approximately 1/64" when the "Record" button is depressed, if not, loosen the forward adjustment screw (23) and turn the screw in or out as required to obtain this 1/64" adjustment. Tighten the lock nut.

5. Replace the trim covers.

Brake Shoe Adjustment - (See Figure 5)

1. In order to adjust the brake shoes, the complete mechanism must be removed from the carrying case and the speaker disconnected.

2. With all push buttons in the up position the brake shoes (70) should clear the drums by approximately 1/8".

3. Depress the "Stop" pushbutton while observing the brake shoes. Both brake shoes must contact the drums at the same time and with equal pressure.

4. The adjustment is accomplished by bending the spring arm (69).

Adjustment for Slow Take-Up Reel -

There are some instances where the spring drive belt (9), see Figure 5, stretches after a period of time. In this case, the belt should be removed and shortened.

1. Clip off 3 to 5 turns of the spring belt.

NOTE: The spring belt is made so that one end will twist into the tip of the other end; therefore, clip the turns off the large end of the belt.

2. Twist the ends together and replace the belt.

Recording Bias Adjustment-

The recording bias should need adjustment only if the 5879 tube is replaced. The bias adjustment trimmer (M4) is accessable after the recorder mechanism is removed from the cabinet and the amplifier chassis bottom cover is removed.

To adjust the bias proceed as follows:

1. Turn the recorder on and depress the "Reord" key.

2. Set "Volume" control to minimum (counterclockwise).

3. Connect an AC VTVM (must be low capacity type usable to 40KC) to pin 1 on V3, grid of 6AQ5.

4. Adjust trimmer (M4) to obtain a meter reading of 2.25V.

TROUBLES

Push Buttons Fail to Latch into Position -

1. Lock plate spring (49) loose or broken, resulting in the lock plate not being held against the hinge bracket (46). See Figure 5.

Fails to Erase -

1. Spring (41) loose or broken, resulting in the erase head (120) not being pulled forward to engage the tape. See Figure 2.

2. Erase head not aligned properly. See "Erase Head Adjustment".

No Fast Forward or Reverse (See Figure 5) -

1. Idler lever tension spring (54) may be loose or broken; if so, the idler lever (68) will not be actuated. Replace spring (54).

2. Check idler drive belt (65), see Figure 6, to see if it is properly connected.

No Drive on Record or Playback (See Exploded View) -

1. Idler tension spring (98 or 99) loose or broken, thereby not holding idler wheel (76) in engagement with motor pulley (101) and flywheel (71).

2. Idler slide plate (97) binding on the slide bushing (96), thus preventing the idler from moving forward.

Tape Fails to Wind on Reel During Record or Playback -

1. Reel drive spring (9) loose or broken. See Figure 5.

Speed Variation or "Wow" (See Exploded View) -

1. Check capstan (67), pinch roller (31), idler (76), motor pulley (101), and flywheel (71) for oil or foreign material. Clean these parts with a good cleaning fluid.

2. Check motor pulley (101) to see if it is secured to motor.

3. Check idler tension spring (98 or 99); see if it is holding the idler engaged with motor pulley and flywheel.

4. Idler slide plate (97) binding on the slide bushing (96), preventing idler wheel (76) from making positive contact with motor pulley and flywheel.

Tape Overruns or Spills When Stop Button Is Depressed During Fast Forward or Rewind -

1. Brake shoes out of adjustment. See "Brake Shoe Adjustment".

2. Brake pads worn out. Replace pads.

Failure to Record -

1. Tape pressure pad not adjusted properly, resulting in the tape not being held against the recording head. See "Pressure Pad Adjustment".

2. Record head loose on its mounting. Adjust head and tighten into position as described under "Record-Play Head Adjustment".

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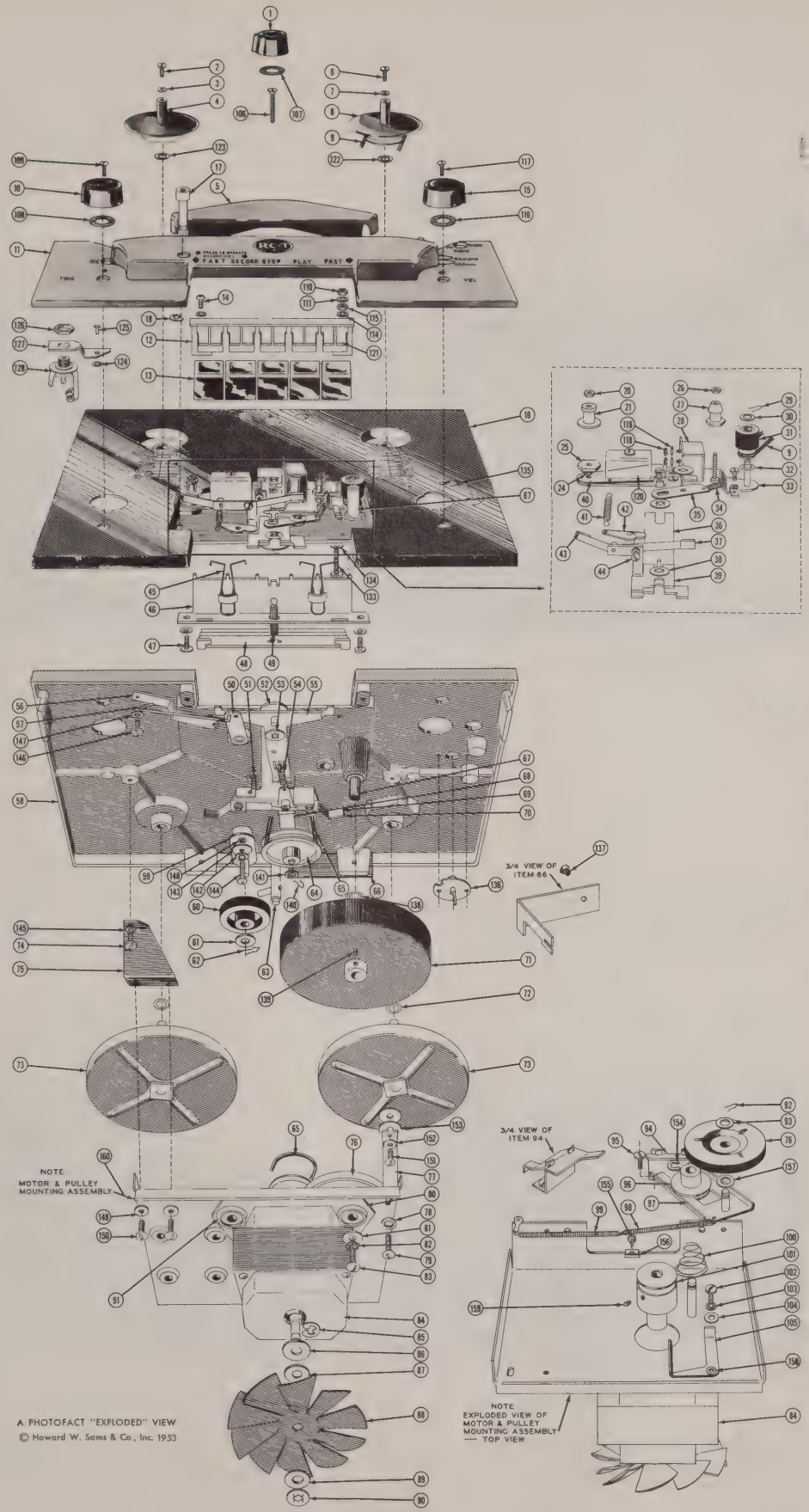
FAST RECORD STOP PLAY FAST
3/4 VIEW OF ITEM 66
3/4 VIEW OF ITEM 94
NOTE
MOTOR & PULLEY MOUNTING ASSEMBLY
NOTE
EXPLODED VIEW OF MOTOR & PULLEY MOUNTING ASSEMBLY — TOP VIEW
A PHOTOFACT "EXPLODED" VIEW
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Figure 6.

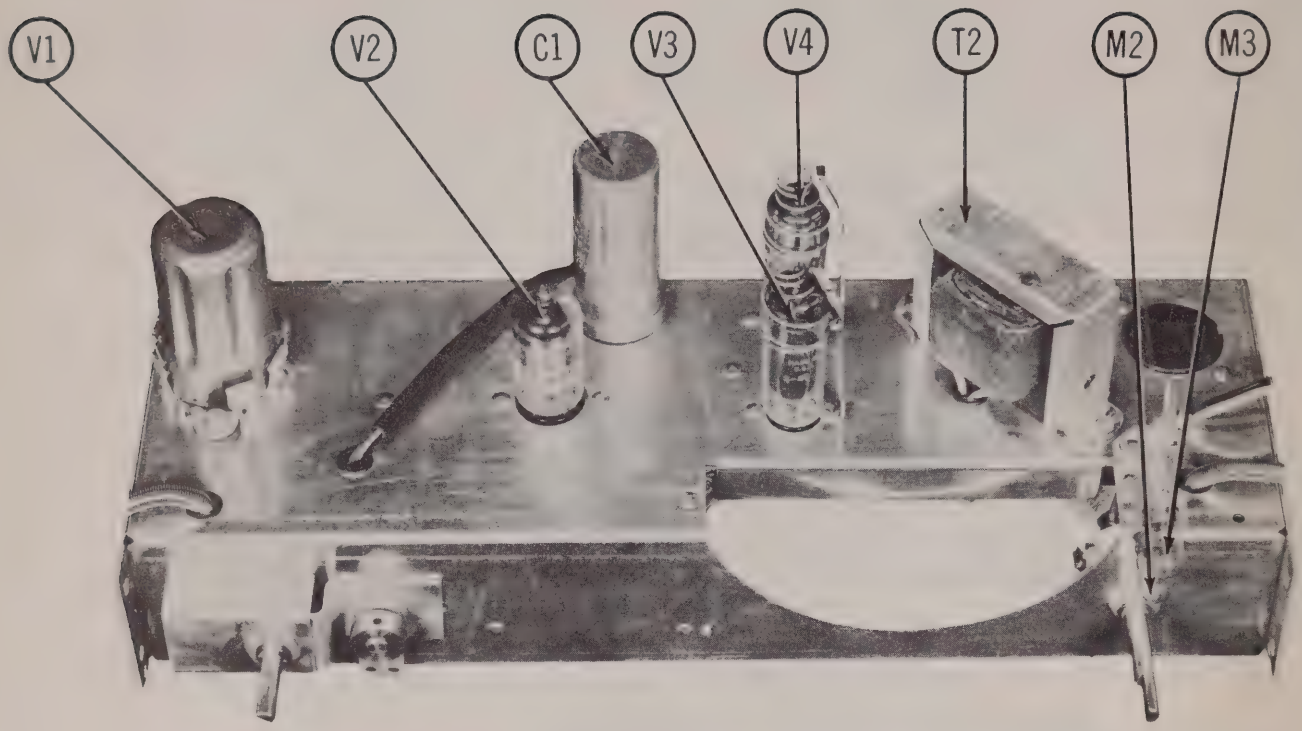


Figure 7.

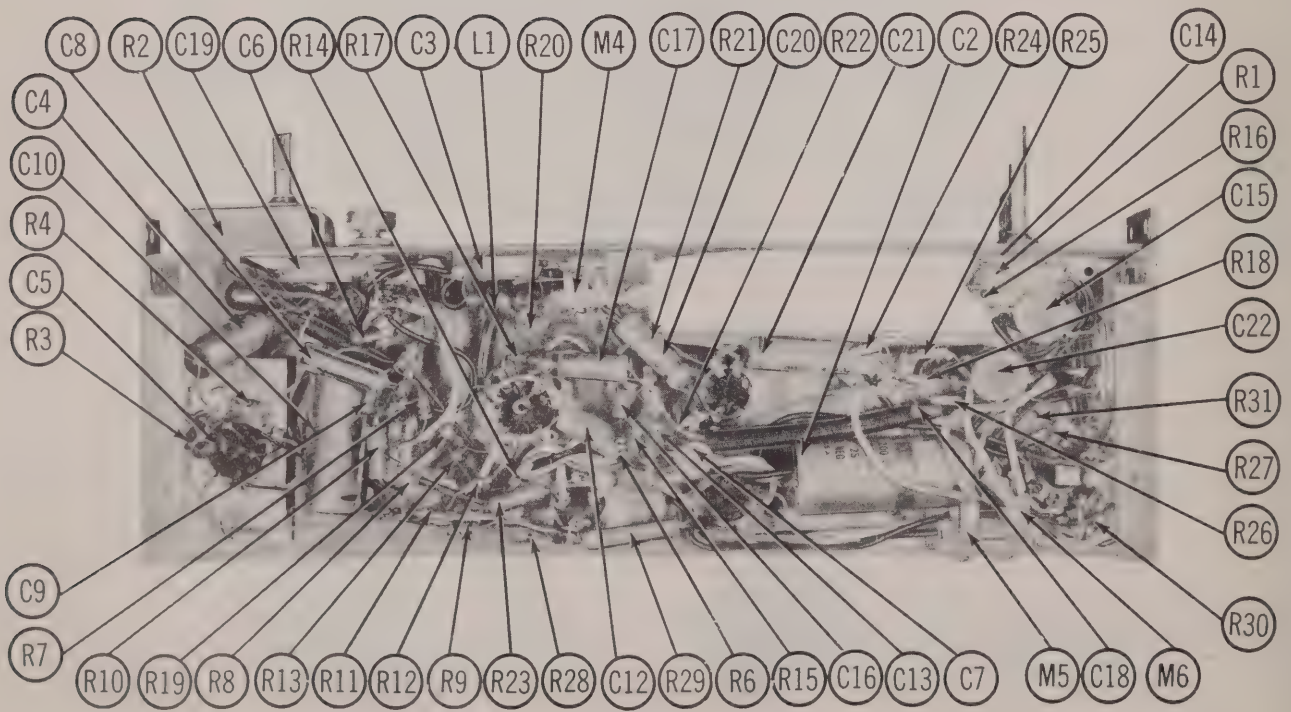
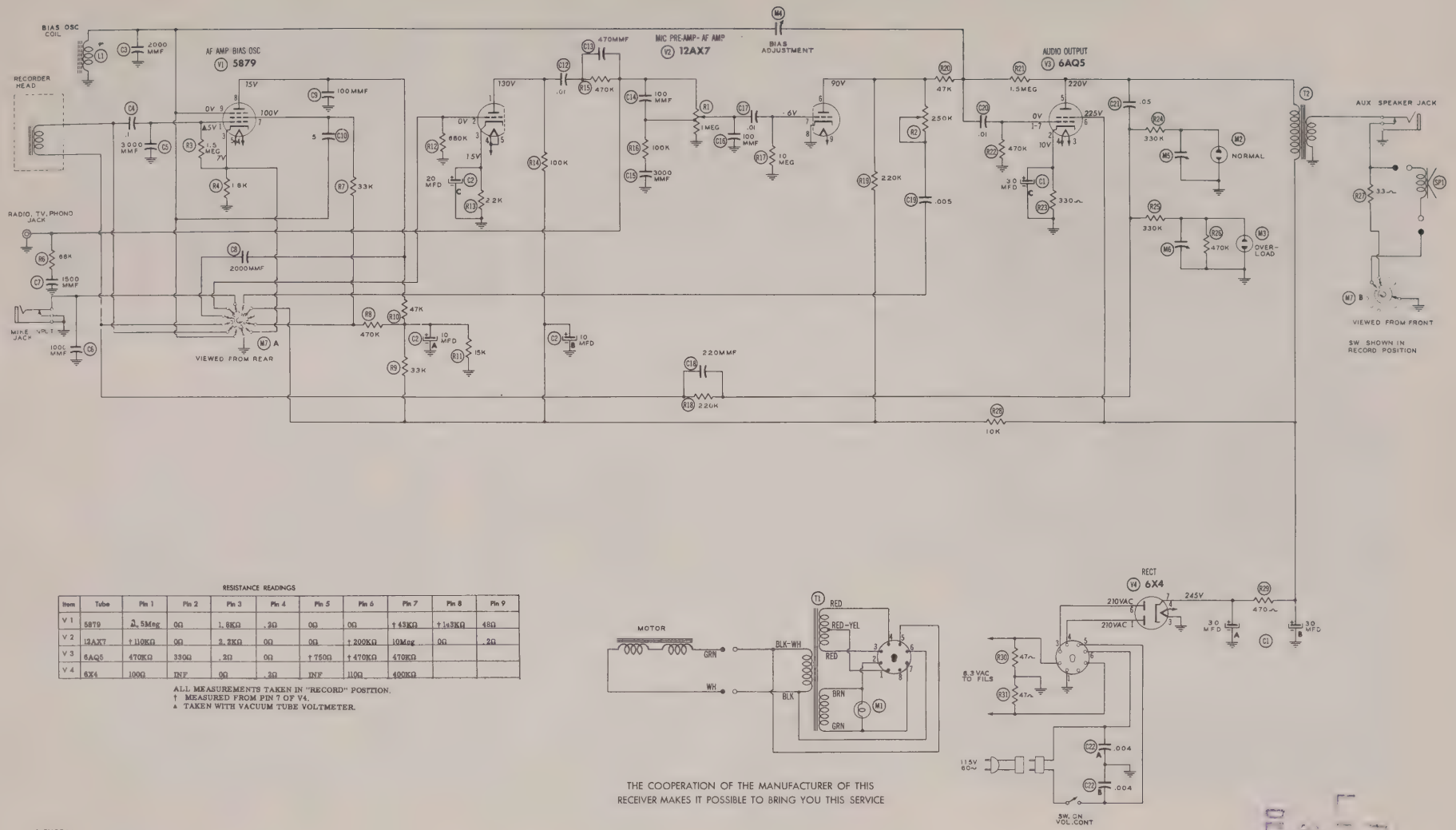


Figure 8.



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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RCA
MODEL SRT-301 (MI-15910)

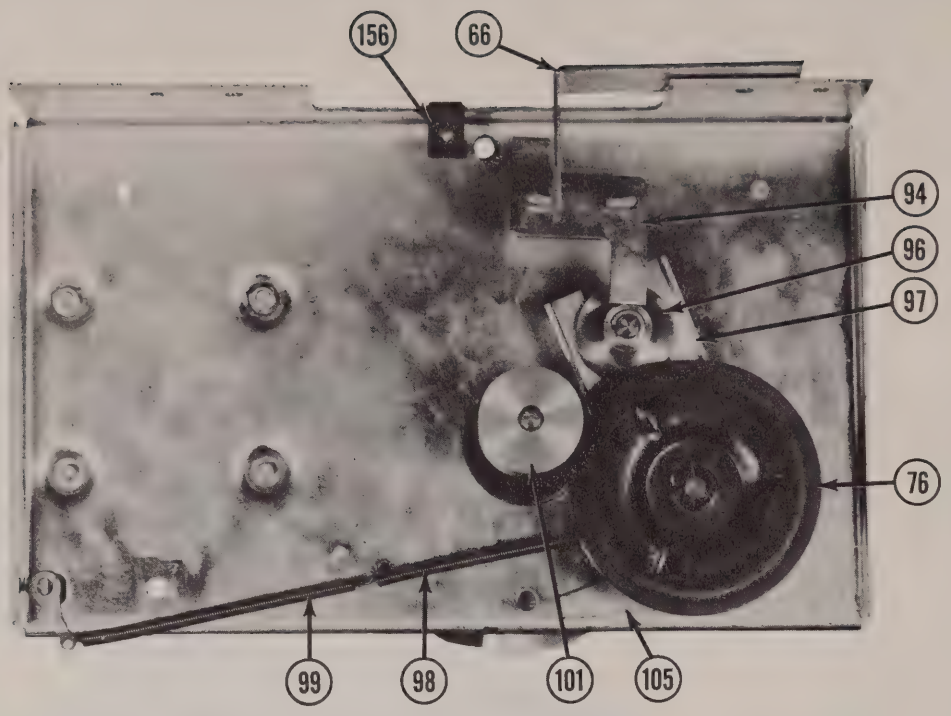

Figure 9.

3. Check the recording tape to see if the dull-coated side faces inward on the reel. If the dull side faces outward, a recording cannot be made. If this condition exists, wind the tape onto an empty reel, as described in "Threading the Tape".

CLEANING

The record head, capstan and pressure roller are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. Use a soft cloth and alcohol to clean the head surfaces, capstan and pressure roller.

CAUTION: Do not use a brush when cleaning the recording head as this could possibly mar the laminations.

LUBRICATION

All rotating parts are provided with generous - size oilite bearings, which are factory lubricated and require no further attention.

An occasional cleaning out of foreign matter under the plastic pushbutton cover is desirable, and a small drop of oil on the sliding lever members is advisable.

Neon Record Level Indicators-

The neon record indicator firing level adjustment is only required if a neon bulb is replaced. The two neon record level indicators are adjusted for correct firing level by means of two trimmer capacitors, one for each indicator.

To adjust indicators proceed as follows:

1. Turn recorder on and depress Record push button.

2. Connect a short jumper lead across the bias oscillator coil, L1 (short out the coil to disable the oscillator).

3. Connect an audio oscillator, set at 1000 cycles, into the microphone input jack. Output of audio oscillator should be approximately .01 volts. (A 1 volt output level may be used with a 100 to 1 reduction pad of resistors inserted between the audio oscillator and the microphone jack).

4. Connect probe of low capacity type AC VTVM to junction of 2-330KΩ resistors, R24 and R25, (mounted on terminal strip near volume control).

5. Adjust volume control to obtain a reading of 36 volts on VTVM and leave control set and VTVM connected.

6. Disconnect shorting jumper from across bias oscillator coil.

7. Adjust Normal indicator trimmer (M5) fully clockwise and then turn slowly counterclockwise so that upon loosening the trimmer the Normal neon bulb barely lights. This adjustment must be made loosening the trimmer.

8. Short out bias oscillator coil.

9. Increase volume control to obtain a reading of 88 volts on the VTVM.

10. Remove short from bias oscillator coil.

11. Adjust Overload indicator trimmer (M6) as described in step "7", for just barely lighting the Overload indicator bulb.

IMPORTANT: Do not readjust the recording bias oscillator adjustment after setting the indicator light adjustments.

PROPERTY OF
L. F. [illegible]
[illegible]
DENVER, COLORADO

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
V1		AF Amp., Bias Osc., 5879	R10	503347	Resistor, 47KΩ, 1/2 W.
V2		Mike Pre-Amp., AF Amp., 12AX7	R11	503315	Resistor, 15KΩ, 1/2 W.
V3		Audio Output, 6AQ5	R12	503468	Resistor, 680KΩ, 1/2 W.
V4		Rectifier, 6X4	R13	503222	Resistor, 2200Ω, 1/2 W.
C1A	98787	Cap., Electrolytic, 30mfd. @ 250V.	R14	503410	Resistor, 100KΩ, 1/2 W.
C1B		Cap., Electrolytic, 30mfd. @ 250V.	R15	503447	Resistor, 470KΩ, 1/2 W.
C1C		Cap., Electrolytic, 30mfd. @ 25V.	R16	503410	Resistor, 100KΩ, 1/2 W
C2A	98788	Cap., Electrolytic, 10mfd. @ 200V.	R17	503610	Resistor, 10 Meg., 1/2 W.
C2B		Cap., Electrolytic, 10mfd. @ 200V.	R18	503422	Resistor, 220KΩ, 1/2 W.
C2C		Cap., Electrolytic, 20mfd. @ 25V.	R19	503422	Resistor, 220KΩ, 1/2 W.
C3	39659	Cap., Mica, 2000mmf. @ 500V.	R20	503347	Resistor, 47KΩ, 1/2 W.
C4	73784	Cap., Paper, .1mfd. @ 200V.	R21	503515	Resistor, 1.5 Meg., 1/2 W.
C5	98798	Cap., Ceramic, 3000mmf. @ 500V.	R22	503447	Resistor, 470KΩ, 1/2 W.
C6	54677	Cap., Ceramic, 1000mmf. @ 500V.	R23	513133	Resistor, 330Ω, 1 W.
C7	75610	Cap., Ceramic, 1500mmf. @ 500V.	R24	503433	Resistor, 330KΩ, 1/2 W.
C8	39659	Cap., Mica, 2000mmf. @ 500V.	R25	503433	Resistor, 330KΩ, 1/2 W.
C9	75437	Cap., Ceramic, 100mmf. @ 500V.	R26	503447	Resistor, 470KΩ, 1/2 W.
C10	73787	Cap., Paper, .5mfd. @ 200V.	R27	94912	Resistor, 3.3Ω, 1 W.
C12	73561	Cap., Paper, .01mfd. @ 400V.	R28	503310	Resistor, 10KΩ, 1/2 W.
C13	94223	Cap., Ceramic, 470mmf. @ 500V.	R29	523147	Resistor, 470Ω, 2 W.
C14	75437	Cap., Ceramic, 100mmf. @ 500V.	R30	513047	Resistor, 47Ω, 1 W.
C15	98798	Cap., Ceramic, 3000mmf. @ 500V.	R31	513047	Resistor, 47Ω, 1 W.
C16	75437	Cap., Ceramic, 100mmf. @ 500V.	T1	98793	Power Transformer
C17	73561	Cap., Paper, .01mfd. @ 400V.	T2	98794	Output Transformer
C18	77460	Cap., Ceramic, 220mmf. @ 500V.	SP1	77270	Speaker, 5 x 7" PM, Complete
C19	73920	Cap., Paper, .005mfd. @ 600V.	L1	98789	Bias Osc. Coil, 7.7 milihenries
C20	73561	Cap., Paper, .01mfd. @ 400V.	M1	11891	Pilot Lamp, Type #44
C21	73553	Cap., Paper, .05mfd. @ 400V.	M2	91749	Neon Lamp, Type NE51, Normal Indicator
C22A	74009	Cap., Ceramic, 4000mmf. @ 500V.			
C22B		Cap., Ceramic, 4000mmf. @ 500V.	M3	91749	Neon Lamp, Type NE51, Overload Indicator
R1	98791	Volume Control, On/Off Switch, 1 Meg.	M4	71808	Trimmer, Bias Adj. (3-35mmf.)
R2	98792	Tone Control, 250KΩ	M5	71808	Trimmer, Normal Indicator Adj., (3-35mmf.)
R3	503515	Resistor, 1.5 meg., 1/2 W.			
R4	502218	Resistor, 1800Ω, 1/2 W.	M6	71808	Trimmer, Overload Indicator Adj., (3-35mmf.)
R6	503368	Resistor, 68KΩ, 1/2 W.			
R7	503333	Resistor, 33KΩ, 1/2 W.	M7A	98790	Play/Record Switch (Viewed from Rear)
R8	503447	Resistor, 470KΩ, 1/2 W.			
R9	503333	Resistor, 33KΩ, 1/2 W.	M7B		Play/Record Switch (Front)

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1	98795	Speed Shift Knob	24		Hex Nut, 6-32
2		Screw, 6-32 x 3/16 BHMS	25		Tape Guide Post Spacer
3		Lockwasher, #6 Cantlink	26		Hex Nut, 6-32
4	98796	Reel Pan for Feed Reel	27	98854	Tape Guide (Right)
5	98797	Rear Escutcheon	28	98808	Head, Recording, Playback
6		Screw, 6-32 x 3/16 BHMS	29	76744	Hairpin Clip
7		Lockwasher, #6 Cantlink	30	98809	Linen Washer
8	98796	Reel Pan for Take-Up Reel	31	98810	Pressure Roller
9	98799	Reel Drive Spring (Belt)	32	98809	Linen Washer
10	98800	Tone Control Knob	33	98811	Pressure Roller Plate Assembly
11	98801	Front Escutcheon	34		Pressure Roller Tension Spring
12	98802	Push Button Retainer Bracket	35		Playback Actuating Lever
13	98803	Push Button (Maroon), 5 Used	36	98813	Playback Slide Plate Assembly
14		Screw, 6-32 x 7/16 RHMS	37	98814	Pressure Pad Spring
15	98800	Volume Control Knob	38	74788	Speed Nut, 3/16 Stud
16	98805	Base Plate	39	98815	Record Slide Plate
17		Record Lock Button	40		Erase Head Plate
18		"C" Washer	41	98816	Erase Head Tension Spring
20		Hex Nut, 6-32	42	98817	Record Actuating Lever Assembly
21	98806	Tape Guide Post (Left)	43		Felt Pad
22		Erase Head Adjustment	44		Pressure Pad Spring Adjusting Screw, 6-32 x 3/8" RHMS
23		Erase Head Forward Adjustment Screw	45	98818	Push Button Return Spring

MECHANICAL PARTS LIST (Cont.)

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
46		Hinge Bracket for Push Buttons	101	98844	Motor Pulley
47		Screw, 6-32 x 1/4 Phillips RHMS	102		Screw
48		Locking Plate for Push Buttons	103		#8 Internal Lockwasher
49	98819	Lock Plate Spring	104		Flat Washer
50		Amplifier Switch Lever	105		Idler Throw Out Lever
51		Brake Return Spring	106		Screw, 6-32 x 1 O.C. Phil. Hd.
52	98821	Brake Slide Plate	107		Felt Washer
53		Speed Nut, 3/16 Stud	108		Felt Washer
54	98822	Idler Lever Tension Spring	109		Screw, 6-32 x 1/2 Phil. Hd. O.C. M.S
55	98823	Shift Plate for High Speed Assembly			
56	98824	Record Interlock Spring Assembly	110		Hex Nut, 6-32 x 1/4
57	98825	Switch Arm Link	111		#6 Internal Lockwasher
58		(Bottom View of Item 16)	114		#6 Internal Lockwasher
59	98826	Sub-Idler Plate Assembly	115		Hex Nut, 6-32 x 1/4
60	98827	Sub-Idler Wheel	116		Felt Washer
61		Felt Washer	117		Screw, 6-32 x 1/2 Phil. Hd. O.C. M.S.
62	76744	Hairpin Clip			
63	98828	Speed Control Shaft Assembly	118		Hex Nut
64	98829	Idler Drive Sheave	119		#2 Internal Lockwasher
65	98830	Idler Drive Belt	120	98845	Erase Head
66	98831	Idler Steady Bracket	121		Push Button Lever Assembly
67	98832	Capstan Shaft	122		Linen Washer
68	98833	Idler Lever Assembly	123		Linen Washer
69		Brake Arm	124		Washer
70		Brake Pad	125		Rivet
71		Flywheel	126		Hex Nut
72		Linen Washer	127		Input Jack Bracket
73		Brake Drum	128	35787	Midget Jack
74		Screw, 8-32 x 1/4 B.H.	133		Screw, 6-32 x 1/2" BHMS
75		Drive Mounting Plate Bracket	134		#6 Internal Lockwasher
76		2 1/2" Rubber Bonded Idler	135		Rivet
77		Angle Bracket	136	7903	Phono Jack
78		#8 Ext. Lockwasher	137		Screw, 8-32 x 1/4 Undercut Flat Hd.
79		Screw, 8-32 x 3/8 R.H.	138		Linen Washer
80		Motor Adaptor Plate	139		Set Screw, 8-32 x 3/16 Allen Hd.
81		Flat Washer	140		Hairpin Clip
82		#8 Internal Lockwasher	141		Linen Washer
83		Screw, 8-32 x 5/8	142		#8 Ext. Lockwasher
84	98836	Motor	143		Flat Washer
85		Truarc Retaining "E" Ring	144		Screw, 8-32 x 3/8 HHMS
86		Flat Washer	145		#8 Ext. Lockwasher
87		Felt Washer	146		Screw, 8-32 x 1/4 BHMS
88		Fan, Motor Cooling	147		#8 Ext. Lockwasher
89		Felt Washer	148		Shoulder Washer
90	98839	Push-on Fastener	149		#8 Ext. Lockwasher
91		Grommet, Motor Adaptor	150		Screw, 8-32 x 1/4 BHMS
92	76744	Hairpin Clip	151		Screw, 8-32 x 3/8 BHMS
93		Linen Washer	152		#8 Ext. Lockwasher
94		Speed Shift Lever	153		Flat Washer
95		Screw, 6-32 x 1/4 BHMS	154	98847	Retaining Washer
96		Idler Slide Bushing	155		Screw, #4 x 3/16 Phil. Hd.
97		Idler Pulley Switch Slide Plate Assembly	156	98848	Spring Clip
			157		Linen Washer
98	98842	Idler Tension Spring	158		Shoulder Washer
99	98842	Idler Tension Spring	159		Set Screw, 8-32 x 1/4 Allen Hd.
100	98843	Idler Lift Compression Spring	160		Motor, Transformer Mtg. Assembly

SILVERTONE MODELS
3200, 3202, 3203 (Ch. 528.259)

DENVER, COLORADO

SILVERTONE MODELS
3200, 3202, 3203 (Ch. 528.259)

TRADE NAME	Silvertone Models 3200, 3202, 3203 (Ch. 528.259)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (Five)	Types 1U4 RF Amp., 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	110-120 Volts AC-DC (or) 9 Volts "A" Supply & 90 Volts "B" Supply in pack form
RATING	.15 Amp. @ 117 Volts AC (or) 65MA @ 9 Volts DC & 16MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1610KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1R5 (V2). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	"	High side to antenna stator plates of tuning gang. Low side to B-.	1610KC	"	"	A5	"
3.	"	"	1400KC	Tune to 1400KC signal	"	A6	"
4.		Loop	1400KC	"	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
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PARTS LIST AND DESCRIPTIONS

SILVERTONE MODEL 3200

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	RF Amplifier	1U4	1U4	6AR	
V2	Converter	1R5	1R5	7AT	
V3	IF Amplifier	1U4	1U4	6AR	
V4	Det-AVC-AF Amp	1U5	1U5	6BW	
V5	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲80	150	T18-305					FP302-7	R131l	
B	■30	150								
C	▲300	25								
C2	16	105	T18-306	PRS150/16		BR1615		TC44	TVA-1409	
C3	.05	200	T19-221	P288-05	DF-503	PTE4S5		PT415	2TM-S5	
C4	10	500	T15-186	1469-00001	D6-100	5W5Q1	GP1K-100	MC-215	MS-41	
C5	10000		T15-21	BPD-01	D6-103	TM5S1	GP2-333-103	DC-511	5HK-S1	
C6	.1	200	T16-157	P288-1	DF-104	PTE4P1		PT401	2TM-P1	
C7	5000		T16-177	BPD-005	D6-502	TM5D5	GP2-333-502	DC-525	5HK-D5	
C8	.05	200	T19-221	P288-05	DF-503	PTE4S5		PT415	2TM-S5	
C9	100	500	T15-188	1469-0001	D6-101	5W5T1	GP1K-101	MC-235	MS-31	
C10	5000		T16-177	BPD-005	D6-502	TM5D5	GP2-333-502	DC-525	5HK-D5	
C11	.02	400	T16-150	P488-02	DD-203	PTE4S2		PT412	2TM-S2	
C12	50	500	T15-175	1469-00005	D6-500	5W5Q5	GP1K-500	MC-225	MS-45	
C13	5000		T16-177	BPD-005	D6-502	TM5D5	GP2-333-502	DC-525	5HK-D5	
C14	.002	400	T16-198	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C15	.05	200	T19-221	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C16	.05	400	T16-179	489ZX-05		PTE4S5		PT415	4TM-S5	
C17	.05	400	T16-179	489ZX-05		PTE4S5		PT415	4TM-S5	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	T24-202	Q13-137	AG-63-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	Rs-2	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWB-2	Not Req.	US-27	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	4.7Meg	½	T60-779	BTS-4.7Meg	
R3	1500Ω	½	T60-729	BTS-1500	
R4	680Ω	½	T60-708	BTS-680	
R5	22KΩ	½	T60-744	BTS-22K	
R6	100KΩ	½	T60-727	BTS-100K	
R7	10Meg	½	T60-728	BTS-10Meg	
R8	470Ω	½	T60-770	BTS-470	
R9	2.2Meg	½	T60-726	BTS-2.2Meg	
R10	47KΩ	½	T60-730	BTS-47K	
R11	1500Ω	½	T60-729	BTS-1500	
R12	18KΩ	½	T60-777	BTS-18K	

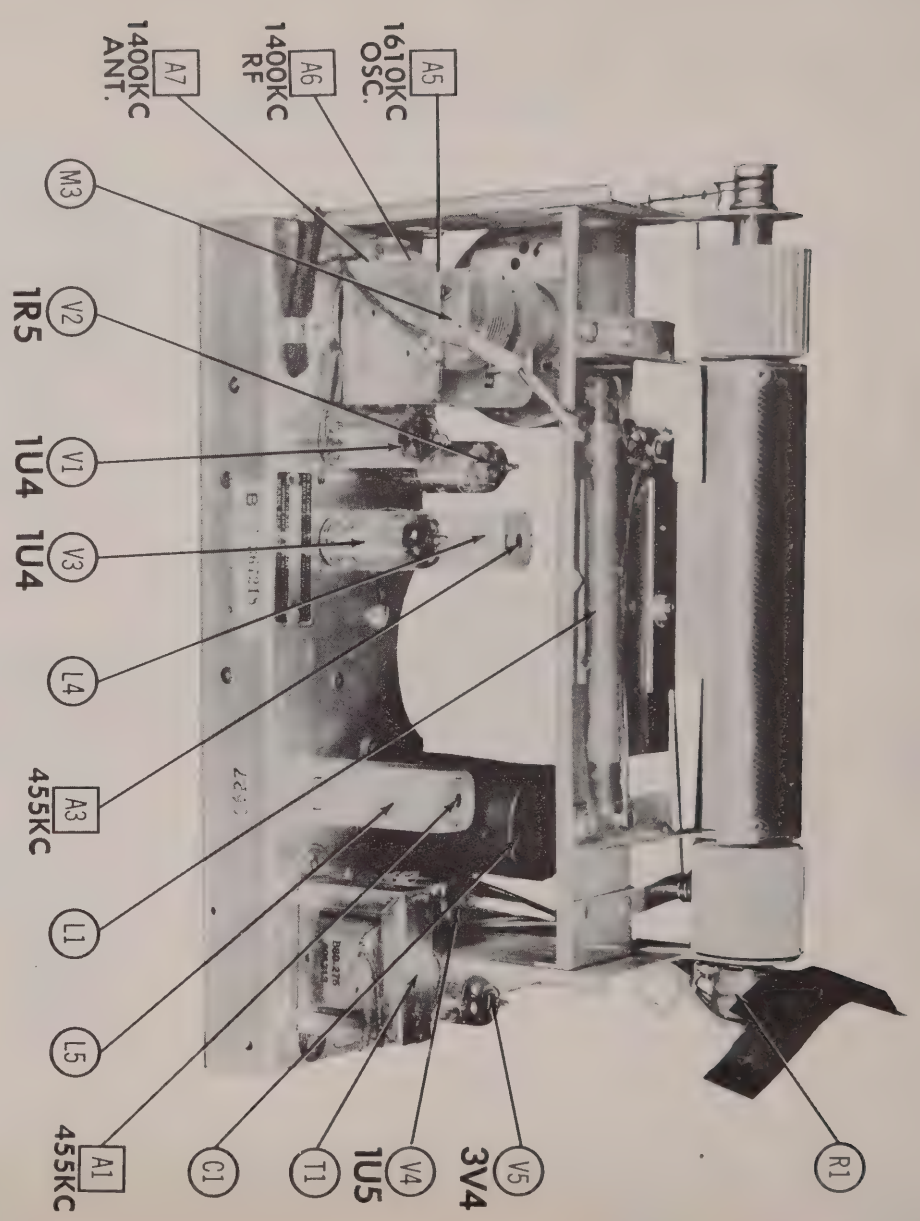
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SILVERTONE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R13	100KΩ	½	T60-727	BTS-100K	
R14	10Meg	½	T60-728	BTS-10 Meg	
R15	4.7Meg	½	T60-779	BTS-4.7Meg	
R16	1Meg	½	T60-668	BTS-1Meg	
R17	10KΩ	½	T60-783	BTS-10K	Note 1
R18	4700Ω	½		BTS-4700	
R19	1Meg	½	T60-668	BTS-1Meg	
R20	330Ω	½	T60-704	BTS-330	
R21	110Ω	3	T60-796		
R22	1000Ω	½	T60-703	BTS-1000	
R23	2000Ω	10	T60-879	1 3/4-2000	

Note 1. Some models may use a 15KΩ resistor in this application.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SILVERTONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	9.87KΩ	3.2Ω	438Ω	.52Ω SEC #2 22.6Ω	80-275					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	VIKING PART No.	QUAM PART No.	
SP1	5 x 7"	PM	3.2Ω	79-402	57J9	57A1	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.5Ω		T82-80				
L2	RF Coil	11Ω	12Ω	T10-535				Sec. Tapped@ 7.5Ω
L3	Osc. Coil	6.5Ω	13Ω	T10-553			70-OSC *	
L4	Input IF	20Ω	20Ω	T10-508	16-6758	BC-352	12-C1	
L5	Output IF	20Ω	20Ω	T10-508	16-6758	BC-353	12-C2	

* Disregard tap on secondary winding.

SELENIUM RECTIFIER

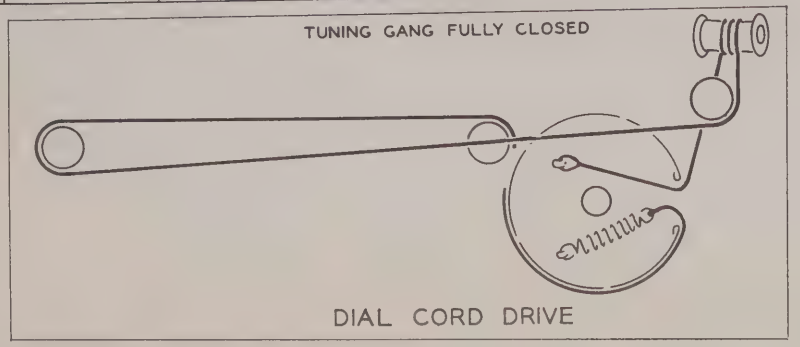
ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT	SILVERTONE PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.
M1	.063ADC	83-642	NA5	5M4	1002A	6S65	65

BATTERIES

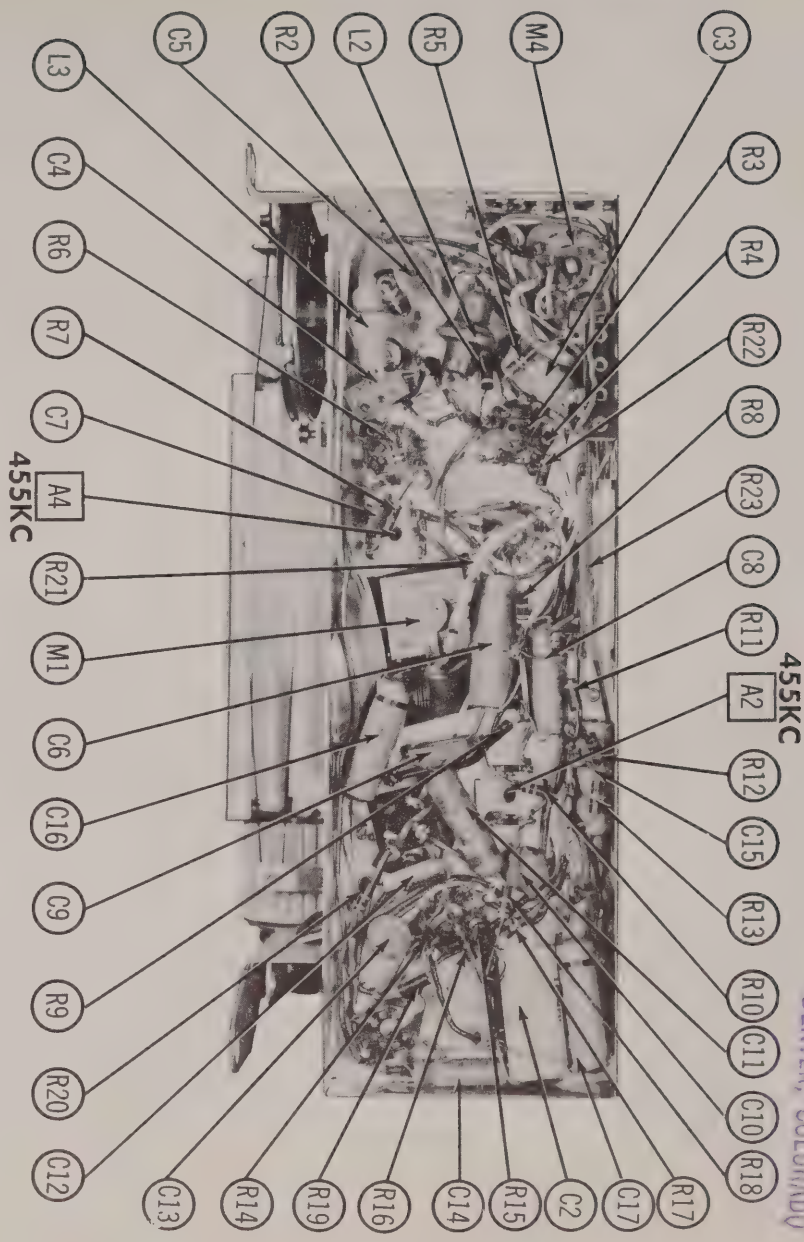
ITEM No.	VOLTAGE	SILVERTONE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	9V "A" 90V "B"	6407			756			T6Z60	

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Tuning Cap.	T19-221	(19-323MMF, 12-213MMF, 9-82MMF)
M4	Switch	T69-186	Power Selector
	Cabinet	T42-534	Silver (less hardware) Model 3203
	Cabinet	T42-532	Green (less hardware) Model 3202
	Cabinet	T42-519	Maroon (less hardware) Model 3200
	Crystal	T48-62	Plastic dial scale protector
	Handle Cover	T53-10	Maroon - Model 3200
	Handle Cover	T53-11	Green - Model 3202
	Handle Cover	T53-12	Silver - Model 3203
	Handle End Caps	T49-12	2 required
	Handle strap	T53-9	
	Knob	T52-413	Model 3200 (2 required)
	Knob	T52-414	Model 3202 (2 required)
	Knob	T52-415	Model 3203 (2 required)



CHASSIS—BOTTOM VIEW

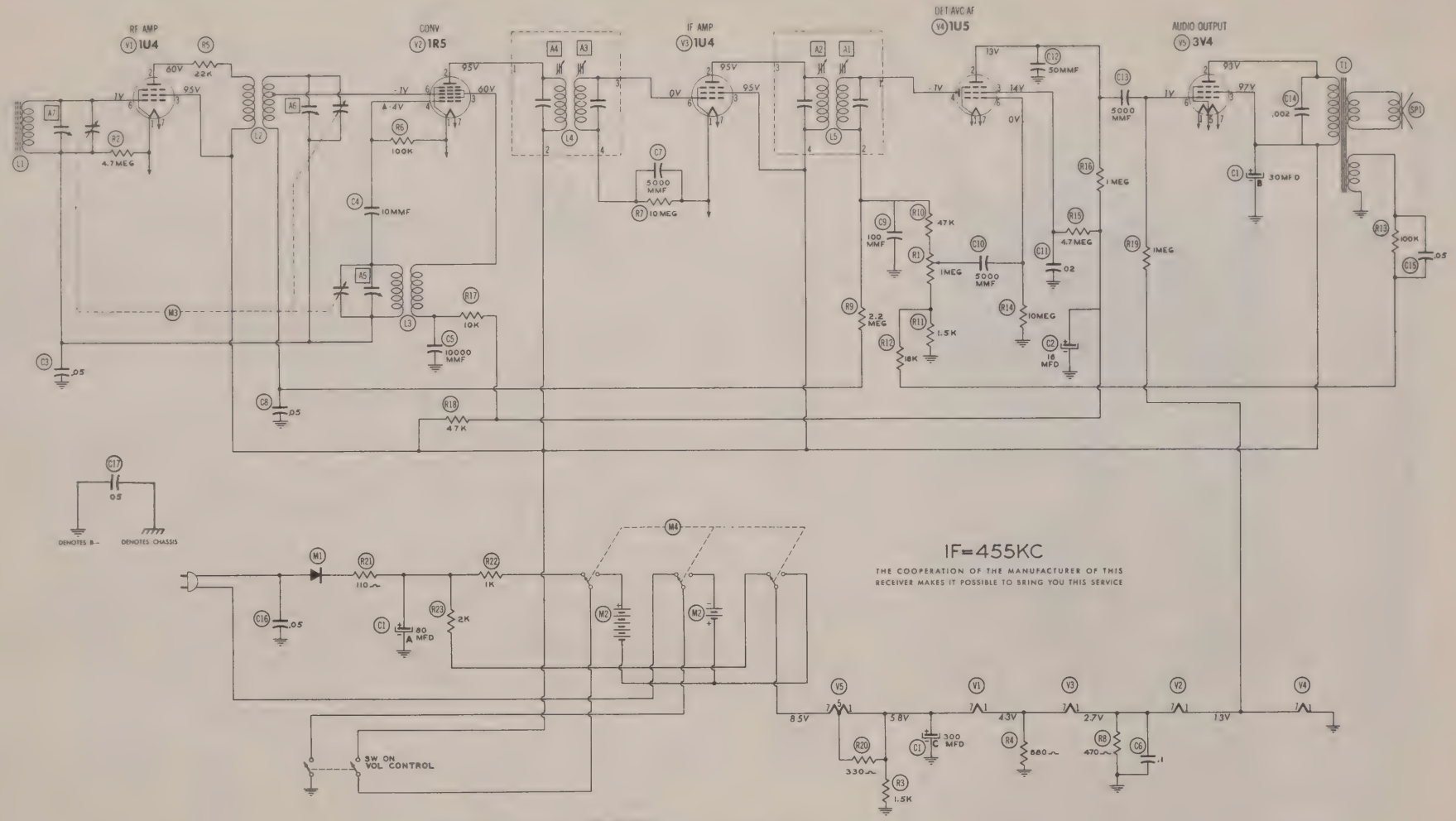


PROPERTY OF
L. F. KLAKEGNSHIP
3224 MEADE ST.
DENVER, COLORADO

SILVERTONE MODEL 3200

SILVERTONE MODEL 3200

SET 224 FOLDER 12



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	*	■23.1KΩ	■1.1KΩ	3Meg	*	4.7Meg	*
V 2	1R5	*	■1.1KΩ	■15.8KΩ	100KΩ	*	3.3Meg	*
V 3	1U4	*	■1.1KΩ	■1.1KΩ	INF	*	10Meg	*
V 4	1U5	*	■1Meg	■4.7Meg	3.3Meg	INF	10Meg	*
V 5	3V4	*	■1.5KΩ	■1.1KΩ	INF	*	1Meg	*

▲ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
■ MEASURED FROM OUTPUT OF M1

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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224-12

1- DC voltage measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt.
2- Socket connections are shown as bottom views.
3- Measured values are from socket pin to common negative.
4- Line voltage maintained at 117 volts for voltage readings.
5- Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6- Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

SPARTON MODELS 24542, 25544 (Ch. 29U273), 26542, 26544 (Ch. 27D273)

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MODEL 25544

SPARTON MODELS 24542, 25544 (Ch. 29U273), 26542, 26544 (Ch. 27D273)

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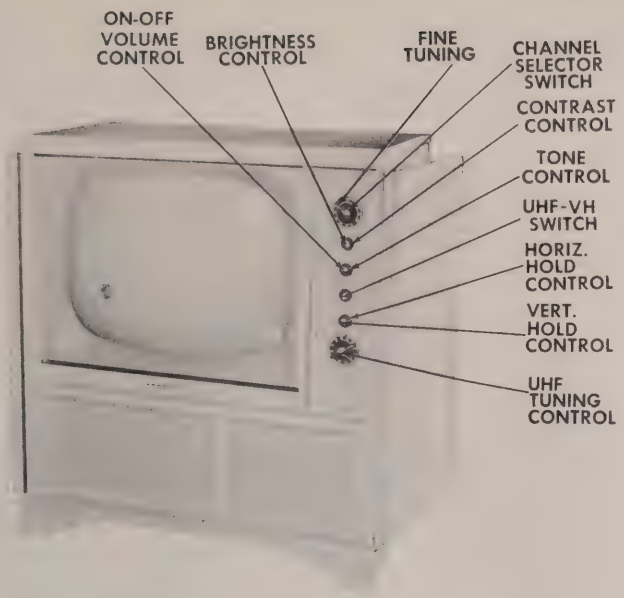

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SPARTON MODEL 25544

TRADE NAME	Sparton	MODELS	CHASSIS
		24542, 25544 26542, 26544	29U273 27D273 (without UHF Conv.)
MANUFACTURER	Sparks-Withington Co., Jackson, Mich.		
TYPE SET	Televison Receiver		
TUBES	Twenty-nine		
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING 2.64 Amp. @ 117 Volts AC	
TUNING RANGE-	Channels 2 thru 13 VHF, 14 thru 83UHF, Video IF 26.25MC, Sound IF 21.75MC (Intercarrier)		

IN SOME CASES THE ABOVE CHASSIS MAY BE LISTED SEPARATELY WITHOUT THE POWER SUPPLY UNIT AS TYPE 26U273 and 24D273, RESPECTIVELY. THE POWER SUPPLY UNIT WILL THEN BE DESIGNATED AS TYPE 2D273.

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SPARTON MODELS 24542, 25544 (Ch. 29U273), 26542, 26544 (Ch. 27D273)

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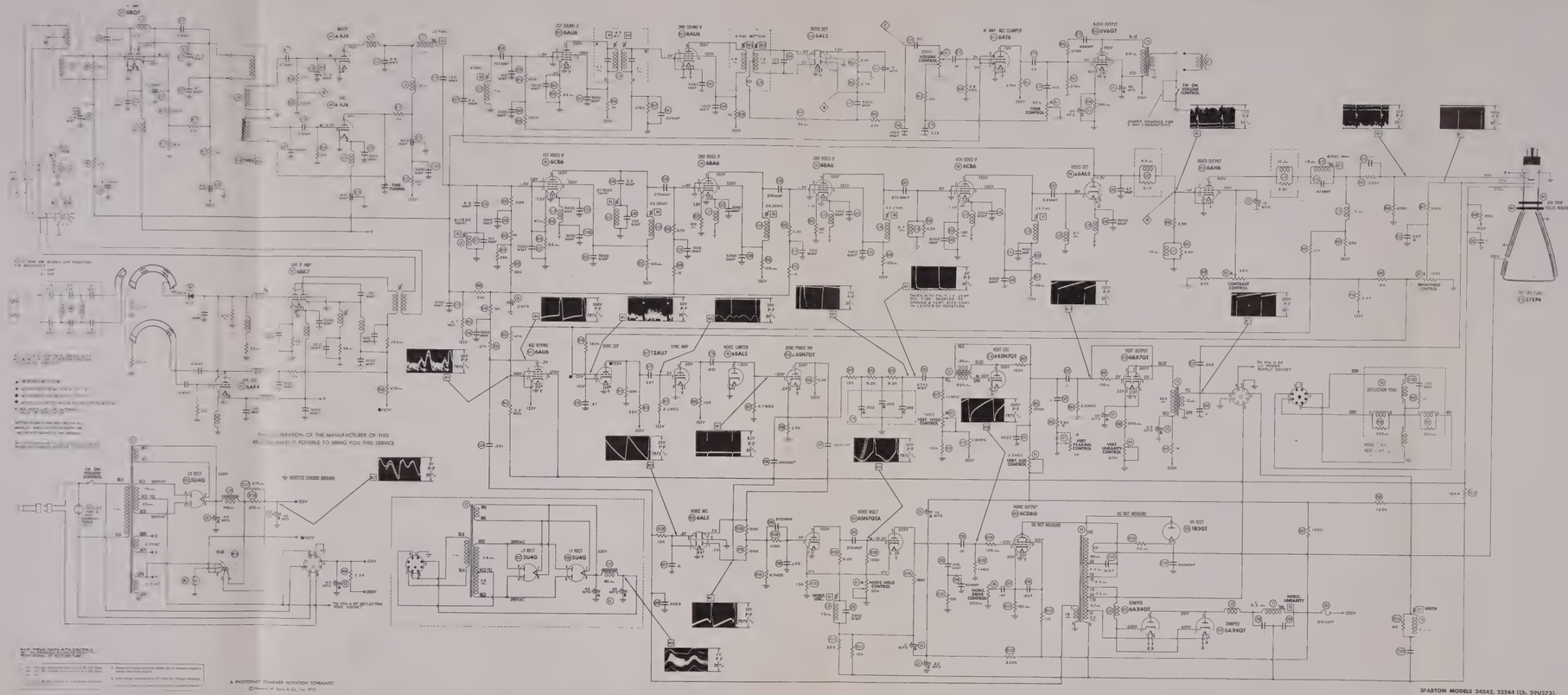

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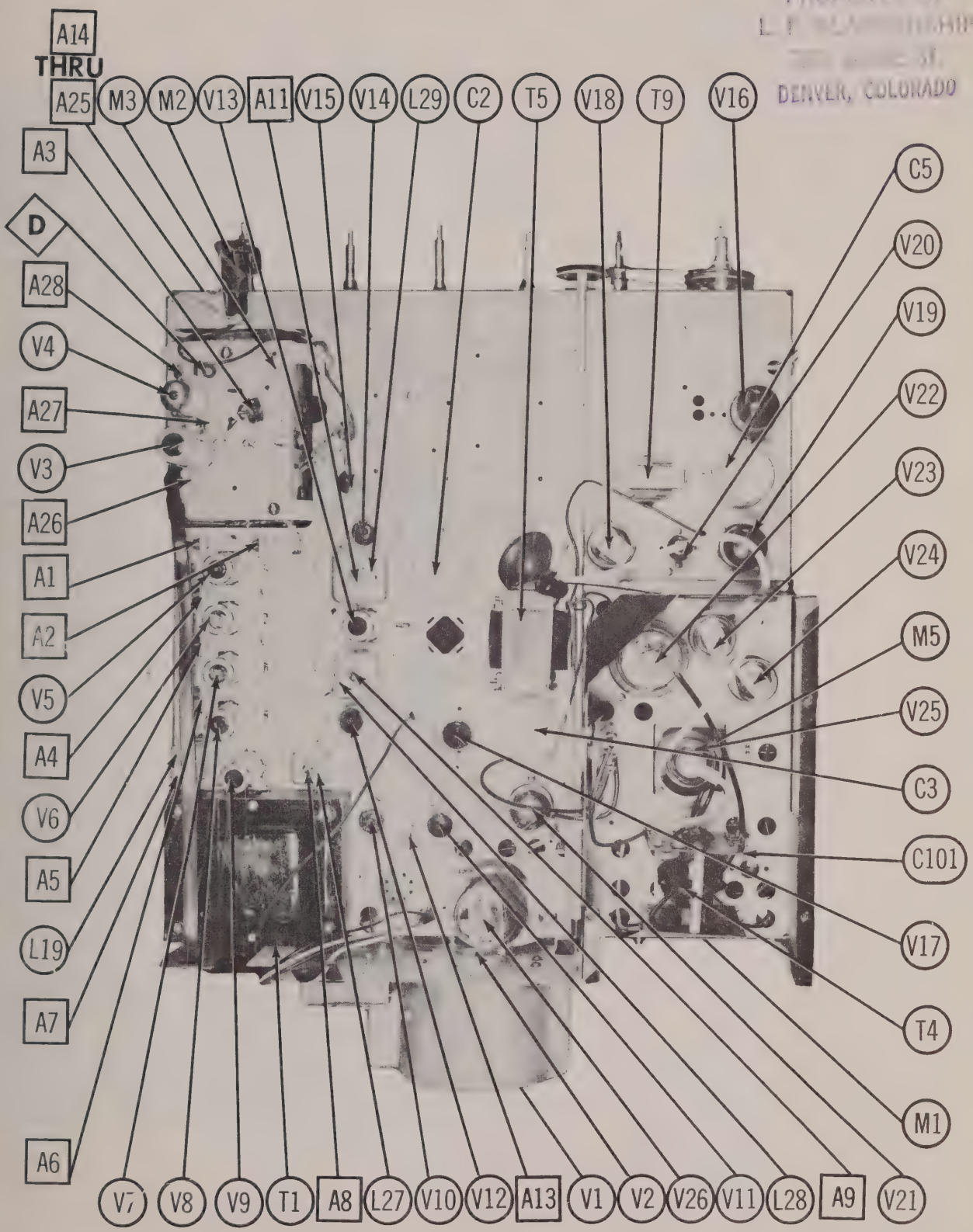
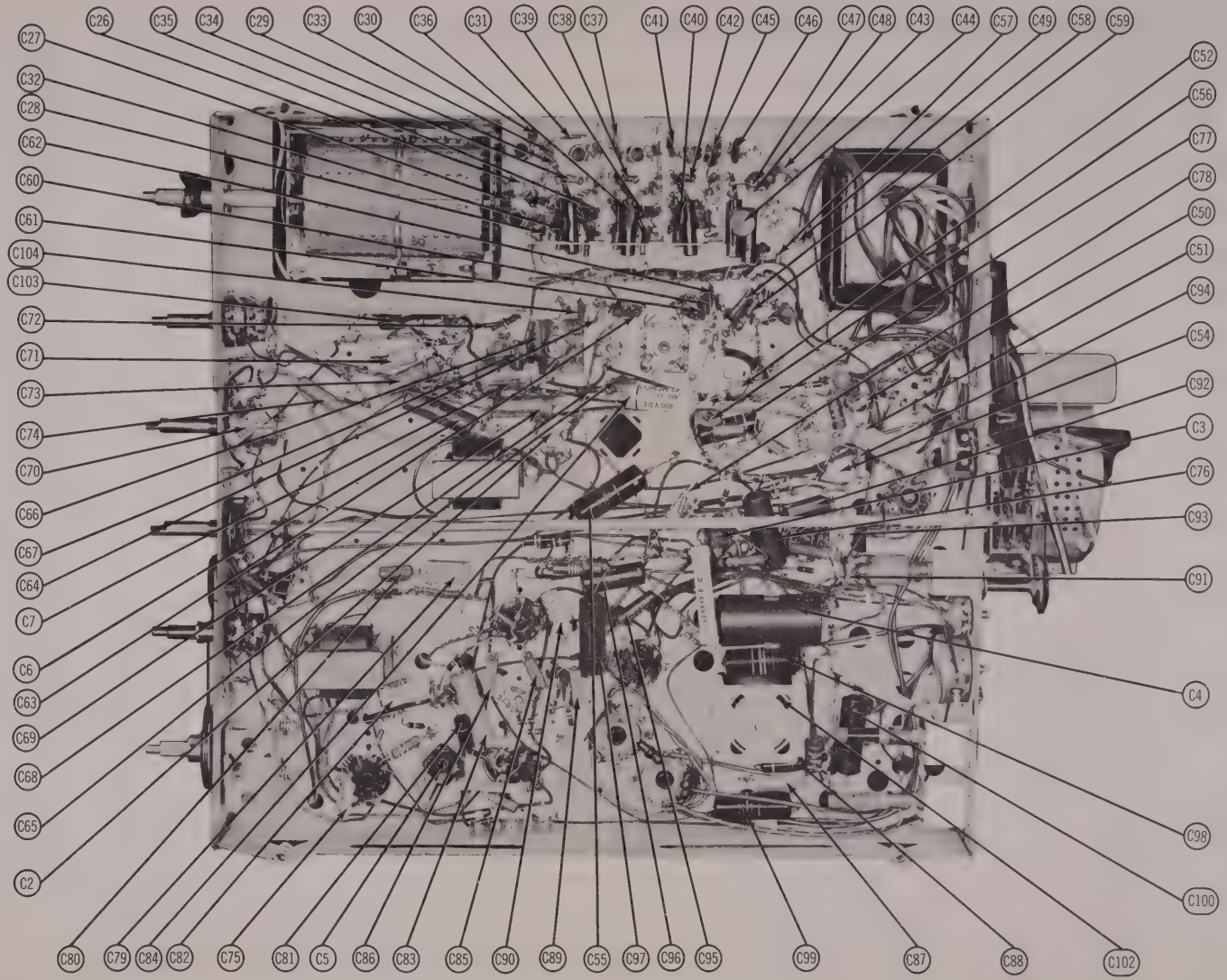
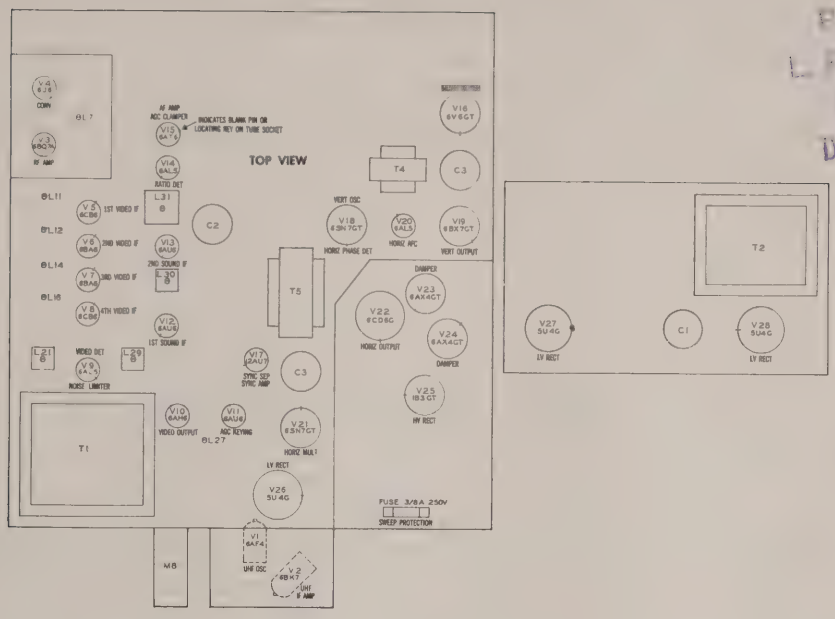


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART



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TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V26, V27, V28

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, V6, V7, V8, V9 (V1 UHF only)
No pic, no sound, has snow - V3, V4, V5
No pic, has sound, has raster - V10, V29
Has pic, no sound - V12, V13, V14, V15, V16
Overloaded picture - V11, V15

SYNC FAILURE
No vert. sync - V18, V19
No horiz. sync - V18, V20, V21
No vert. or horiz. sync - V17, V18

SWEEP FAILURE
No raster, has sound - V21, V22, V23, V24, V25, V27, V28, V29 (Fuse (M1)
No vertical deflection - V18, V19
Poor vert. linearity or foldover - V18, V19
Poor horiz. linearity or foldover - V21, V22, V23, V24
Narrow picture - V21, V22, V23, V24, V25, V26, V27, V28
Vert. off freq. - V18, V19
Horiz. off freq. - V18, V20, V21

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V22) from its socket. Set VHF-UHF selector switch to VHF.

VIDEO IF ALIGNMENT

Remove the converter tube (V4) from its socket and replace with a 6J6 which has Pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications. Connect the negative lead of a 4.5 Volt bias supply to the ungrounded side of C6. Connect the positive lead to chassis.
Remove 6AU6 (V11) from its socket.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V4).	27.75MC (Unmod.)	Any	High side to point (A). Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	21.75MC	"	"	A2	"
3.	"	"	22.5MC	"	"	A3	Adjust for maximum deflection.
4.	"	"	25.25MC	"	"	A4	"
5.	"	"	24.25MC	"	"	A5	"
6.	"	"	23.25MC	"	"	A6	"
7.	"	"	26.0MC	"	"	A7	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Leave the 4.5 volt battery connected as under video IF alignment.
Connect a 47KΩ resistor in series with the high lead to the vertical amplifier of the scope. Connect a 50MMF capacitor across the input terminals of the vertical amplifier.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis	24.5MC (10MC Swp)	22.7MC 25.5MC 26.25MC	Any	Vert. amp. to point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, retouch A3 thru A7 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B). Common to chassis.	A8, A9, A10, A11	Adjust for maximum deflection.
10.	"	"	"	"	DC probe to point (C). Common to chassis.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A8, A9, A10, A11	Disconnect stabilizer capacitor C7. Adjust for curve of maximum amplitude and symmetry as in Fig. 2.
10.	.01MFD	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A12	Reconnect stabilizer capacitor C7. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. Slightly retouch A-11 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe thru crystal diode detector (Fig. 4) to pin 11 of picture tube. Common to chassis.	A13	Adjust for MINIMUM deflection.

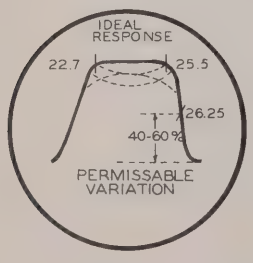

FIG.1

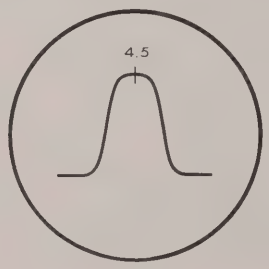

FIG. 2

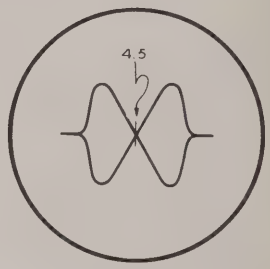

FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

VHF OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket. Replace the 6AU6 in its socket.
Connect the negative lead of 3 Volt bias supply to the ungrounded side of C72. Connect the positive lead to chassis.
The channel oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47KΩ resistor to point (A). Low side to chassis.	A14	Adjust to place sound and video markers as in fig. 5.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A15	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A16	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A17	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A18	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A19	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A20	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A21	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A22	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A23	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A24	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A25	

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RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.2MC 209.75MC	12	Vert. amp. thru 10KΩ to point (D). Low side to chassis.	A26, A27 A28	Adjust for response curve similar to Fig. 6. If markers fall below 70% on any channel make compromise adjustment of A26, A27, and A28 with channel switch set to that channel then check all other channels to see that they have not been seriously affected.
14.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	"	
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

UHF CONVERTER ALIGNMENT

Field alignment of the UHF converter is not recommended because special test equipment is required. Any UHF converter field adjustments should be held to a minimum.
If the UHF converter is known to be defective or require alignment return the complete tuner assembly (with tubes) to the factory service department for repair or replacement.

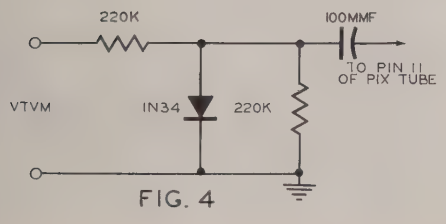


FIG. 4

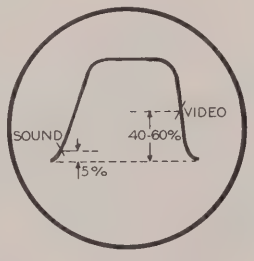


FIG. 5

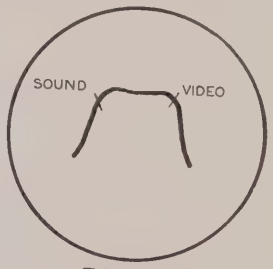


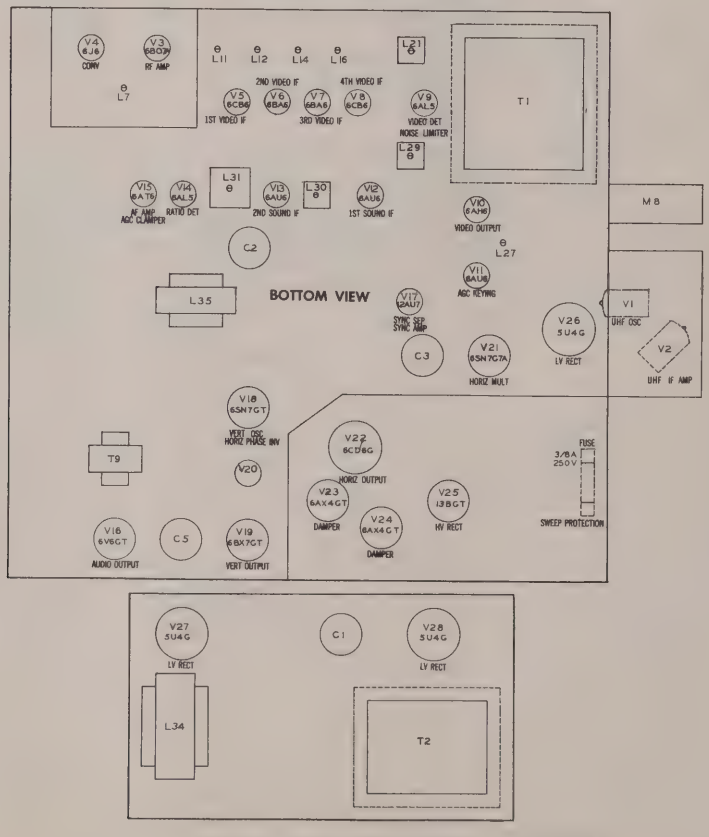
FIG. 6

SPARTON MODELS 24542, 25544 (Ch. 29U273), 26542, 26544 (Ch. 27D273)

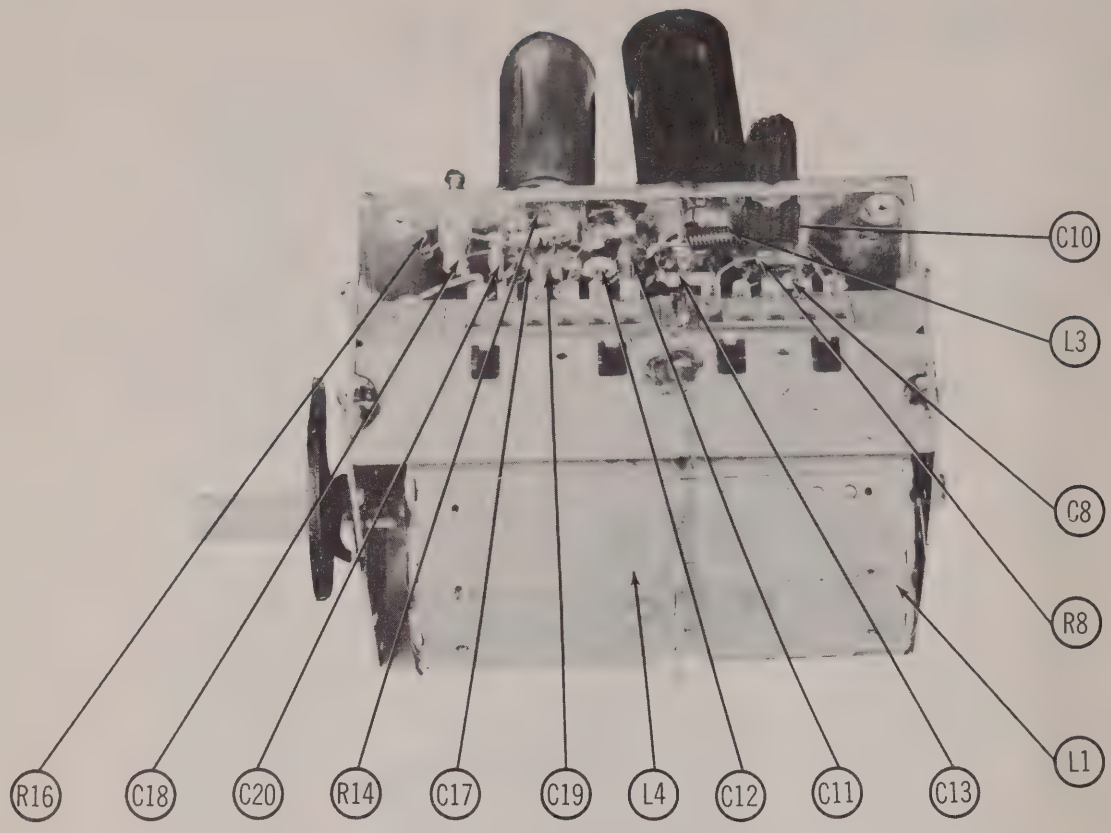
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 3	6BQ7	INF	270KΩ	0Ω	.1Ω	0Ω	§4.1KΩ	470KΩ	INF	0Ω
V 4	6J6	■15.5KΩ	■345Ω	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 5	6CB6	37.6KΩ	129Ω	0Ω	.1Ω	■345Ω	■345Ω	82Ω		
V 6	6BA6	94KΩ	0Ω	0Ω	1Ω	■345Ω	■345Ω	100Ω		
V 7	6BA6	93KΩ	0Ω	0Ω	.1Ω	■345Ω	■345Ω	100Ω		
V 8	6CB6	2.7Ω	120Ω	0Ω	.1Ω	■445Ω	■345Ω	0Ω		
V 9	6AL5	0Ω	3.9KΩ	0Ω	.1Ω	2.7Ω	0Ω	4.7Meg		
V 10	6AH6	3.9KΩ	0Ω	0Ω	.1Ω	■5.8KΩ	■6.2KΩ	0Ω		
V 11	6AU6	■63KΩ	■245Ω	0Ω	.1Ω	130KΩ	#180KΩ	■245Ω		
V 12	6AU6	670KΩ	0Ω	.1Ω	0Ω	■1.2KΩ	■1.2KΩ	82Ω		
V 13	6AU6	470KΩ	0Ω	.1Ω	0Ω	■1.2KΩ	■1.2KΩ	0Ω		
V 14	6AL5	INF	INF	0Ω	.1Ω	4.7KΩ	0Ω	4.7KΩ		
V 15	6AT6	6.8Meg	0Ω	0Ω	.1Ω	220KΩ	220KΩ	§270KΩ		
V 16	6V6GT	INF	.1Ω	§2.9KΩ	§2.6KΩ	470KΩ	740KΩ	0Ω	390Ω	
V 17	12AU7	§22KΩ	■15.8KΩ	■200KΩ	.1Ω	.1Ω	■12KΩ	■2.2Meg	0Ω	0Ω
V 18	6SN7GT	4.7Meg	§3.4KΩ	3.9KΩ	1.3Meg	#1.4Meg	0Ω	0Ω	.1Ω	
V 19	6BX7GT	2.2Meg	§1.7KΩ	700Ω	2.2Meg	§1.7KΩ	700Ω	0Ω	.1Ω	
V 20	6AL5	12KΩ	12KΩ	.1Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V 21	6SN7GT	5.2Meg	#18.5KΩ	1.5KΩ	120KΩ	#190KΩ	1.5KΩ	0Ω	.1Ω	
V 22	6CD6G	INF	0Ω	150Ω	INF	1Meg	1Meg	.1Ω	§11KΩ	TOP CAP #8.5Ω
V 23	6AX4GT	INF	150KΩ	150KΩ	INF	§86Ω	INF	150KΩ	150KΩ	
V 24	6AX4GT	INF	INF	150KΩ	INF	§86Ω	INF	150KΩ	150KΩ	
V 25	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				TOP CAP #175Ω
V 26	5U4G	INF	30KΩ	1.8Ω	19Ω	160KΩ	20Ω	INF	30KΩ	
V 27	5U4G	INF	50KΩ	INF	28Ω	INF	32Ω	INF	50KΩ	
V 28	5U4G	INF	50KΩ	INF	28Ω	INF	32Ω	INF	50KΩ	
V 29	27EP4	.1Ω	■400KΩ	PIN 10 #120KΩ	PIN 11 ■150KΩ	PIN 12 0Ω				

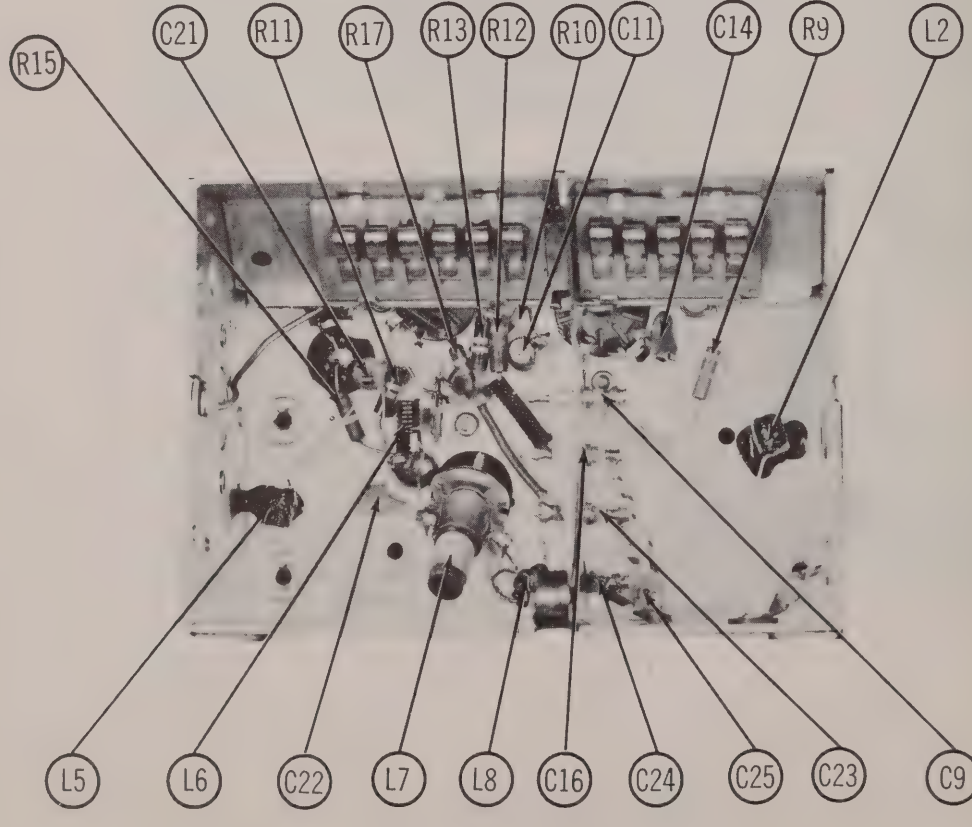
■ MEASURED FROM PIN 8 OF V26
§ MEASURED FROM PIN 8 OF V26
# MEASURED FROM PIN 3 OF V23



TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

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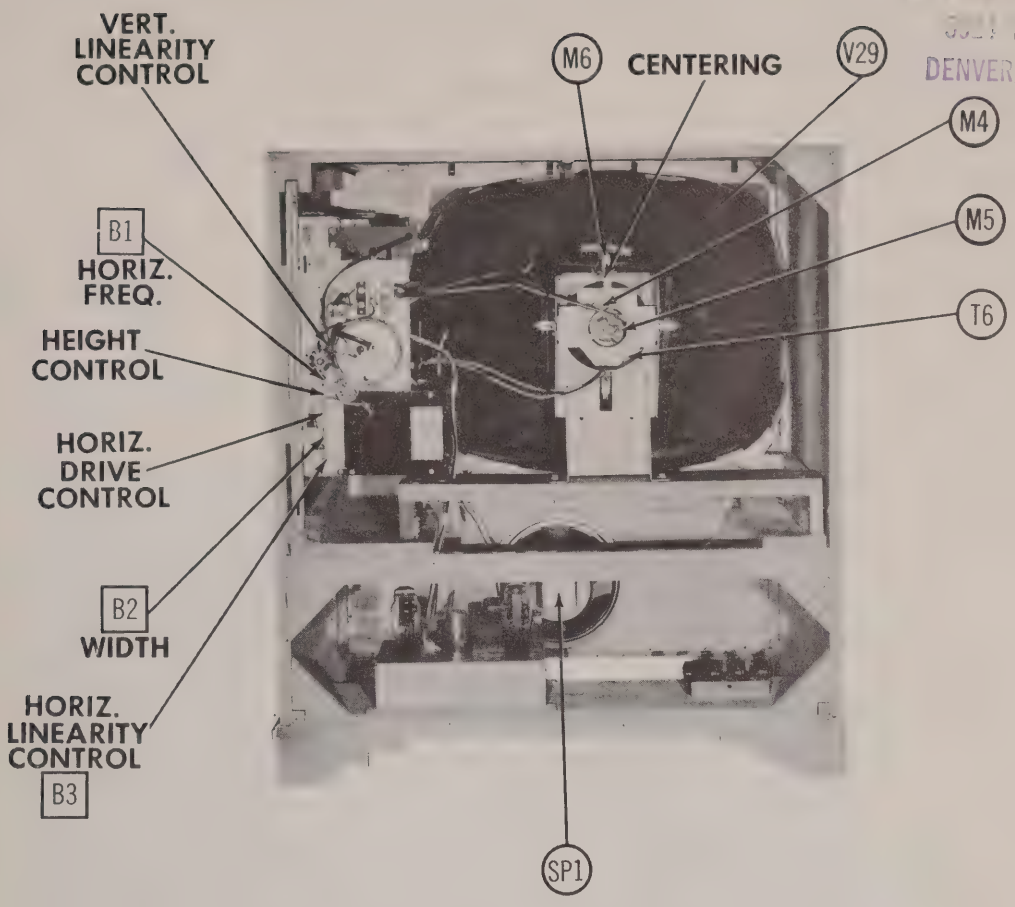

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the mid-point of its range adjust the horizontal oscillator slug (B1) until the picture synchronizes horizontally.

Turn the horizontal drive control to the maximum clockwise rotation without compression of the center of the picture.

Adjust the width slug (B2) for a picture slightly wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B3) for picture that is symmetrical from left to right.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

See "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V21, V22, V23, V24, V27 , and V28. Check adjustment of horizontal drive, B2 and B3. Check waveform W16.

If Satisfactory	If Unsatisfactory
Check C96, C98, C99, C100, R113, R116, T4, T6A and other associated components.	Check C92, C93, C94, C95, R106, R108, R114 and other associated circuit components.

DRIVE LINES

Check by substitution V21, V22, V23 and V24. Check C93, C94, C95, C98, C99, T4, T6A and other associated circuit components.

COMPRESSED LEFT SIDE

Check by substitution V23, V24 and V22. Check adjustment of horizontal drive B2 and B3. Check T4, T6A and other associated circuit components.

FOLDS

Check by substitution V21, V22, V23 and V24. Check damper circuit components especially T4, T6A, C98 and C99.

XMAS TREE EFFECT

Substitute V21. Check L30, C91 and C92. Check other associated circuit components.

VERTICAL

LOSS OF SWEEP

Check by substitution V18 and V19. Check waveform W10.

If Satisfactory	If Unsatisfactory
Check T5, T6B, R89, R86, R4, C3B, C84 and other associated Components.	Check R87, R81, R84, R5, C83, T3 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V18 and V19. Check adjustment of height and vertical linearity controls. Proceed as outlined under "Loss of Sweep".

COMPRESSED AT TOP

Check by substitution V18 and V19. Check C5A, R4, T5, T6B and other associated circuit components.

COMPRESSED AT BOTTOM

Check by substitution V18 and V19. Check C82, C83 and other associated components.

FOLDS

Substitute V18 and V19. Check C82, C83, T3, T5, R84 and other associated components.

SYNC

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Check by substitution V20 and V21. Check components associated with these stages especially C91, C92 and R105.

CRITICAL HORIZONTAL HOLD - VERTICAL HOLD SATISFACTORY

Check by substitution V20 and V21. Check associated components especially C87, C88, C91, C92, C89, C90, R120, R101 and R102.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Check by substitution V18. Check waveform W8.

If Satisfactory	If Unsatisfactory
Check components associated with the vertical oscillator	Check vertical integrator network and other components associated with V18A.

CRITICAL VERTICAL HOLD - HORIZONTAL HOLD SATISFACTORY

Substitute V17 and V18. Check associated components.

LOSS OF HORIZONTAL AND VERTICAL SYNC

Substitute V17 and V18. Check C77, C78, R95, R70, R73, R71 and other associated components.

VIDEO

LOSS OF VIDEO

Check by substitution V10. Check picture tube and components associated with V10 and V29.

SOUND BARS (4.5MC BEAT)

Check adjustment of local oscillator. Check 4.5MC trap adjustment A13. Check video IF alignment.

NEGATIVE PIX

Substitute V9, V10 and V11. Check AGC network for proper operation. Check components associated with these stages. Check picture tube.

POOR CONTRAST

Substitute V10. Check contrast control. Check video peaking coils, plate load resistors and bypass capacitors.

SMEAR

Substitute V9 and V10. Check L22, L23, L24 and L26. Check R40, R42, R43, R45 and R46 for change of value. Check C51 picture tube and other associated components.

WIDE BLACK BAR ACROSS PIX

Check V3, V4, V5, V6, V7, V8, V9 and V10 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V12, V13, V14, V15 and V16. Check stages V14 and V15 using an audio signal generator. Apply audio signal across R64.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF alignment and circuit components.	Check components associated with V15 and V16 especially C73.

BUZZ

Adjust A11 and A12 for minimum buzz and maximum sound. Use procedure outlined in the alignment section. If buzz is still objectionable substitute V14 and readjust A11 and A12. Check C7 and C67.

DISTORTED

Check by substitution V12, V13, V14, V15 and V16. Check stages of V15 and V16 using audio signal generator and scope.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF alignment and components.	Check components associated with V15 and V16.

PROPERTY OF
DENVER, COLORADO

CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

PROPERTY O
L. F. BLANKI
2021 MEADE ST

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No	USE	REPLACEMENT DATA: SPARTON Part No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	UHF Oscillator	6AF4	6AF4	7DK	
V2	UHF 1F Amplifier	6BK7	6BK7	9AJ	
V3	RF Amplifier	6BQ7A	6BQ7A	9AJ	
V4	Converter	6J6	6J6	7BF	
V5	1st Video IF Amp.	6CB6	6CB6	7CM	
V6	2nd Video IF Amp.	6BA6	6BA6	7BK	
V7	3rd Video IF Amp.	6BA6	6BA6	7BK	
V8	4th Video IF Amp.	6CB6	6CB6	7CM	
V9	Video Det - Noise Limiter	6AL5	6AL5	6BT	
V10	Video Output	6AH6	6AH6	7BK	
V11	AGC Keying	6AU6	6AU6	7BK	
V12	1st Sound IF Amp.	6AU6	6AU6	7BK	
V13	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V14	Ratio Detector	6AL5	6AL5	6BT	
V15	AF Amplifier - AGC Clamper	6AT6	6AT6	7BT	
V16	Audio Output	6V6GT	6V6GT	7S	
V17	Sync Separator - Sync Amplifier	12AU7	12AU7	9A	
V18	Vert. Oscillator - Sync Phase Inv.	6SN7GT	6SN7GT	9BD	
V19	Vert. Output	6BX7GT	6BX7GT	9BD	
V20	Horiz. AFC	6AL5	6AL5	6BT	
V21	Horiz. Mult	6SN7GTA	6SN7GTA	9BD	
V22	Horiz. Output	6CD6G	6CD6G	5BT	
V23	Damper	6AX4GT	6AX4GT	4CG	
V24	Damper	6AX4GT	6AX4GT	4CG	
V25	HV Rectifier	1B3GT	1B3GT	2C	
V26	LV Rectifier	5U4G	5U4G	5T	
V27	LV Rectifier	5U4G	5U4G	5T	
V28	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: SPARTON Part No.	SYLVANIA Part No.	GENERAL ELECTRIC Part No.	RTMA BASE TYPE	NOTES
V29	27EP4	27EP4	27EP4	12D	
		27GP4		12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C1A	▲40	475	PA4307-13	AFH2-72		BO53		FP262	TVL-2830	
B	▲40	475								
C2A	▲40	250	PA4307-21	AFH3-43		CO34		FP376.5	TVL-3785	
B	▲40	250								
C	▲10	200								
C3A	▲40	475	PA4307-22	AFH3-54		DO 17			TVL-4840	
B	■20	450								
C	▲20	450								
C4A	▲10	350	PA4304-3	AFH2-47		BO37		FP231	TVL-2750	
B	▲10	350								
C5A	●100	50	PA4307-23	AFH3-142		C109		FP375	TVL-3704	
B	●80	450		PR850/20		BR305A		TC36		
C	▲20	50								
C6	2	50	PA4303-14	PR315Q/4		BBR2-50 T		TC302	TVA-1301	
C7	5	50	PA4308-2	PR315Q/4		BR550		TC30	TVA-1303	
C8	3-9				829-10					
C9	800			EF-001	MFT-1000				503C-D1	
C10	3									
C11	.5-3				829-3		C7585A			
C12	47			BPD-000047	D6-470		GP1K-470	UC-5447	5GA-Q47	
C13	900			EF-001	MFT-1000				503C-D1	
C14	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C15	1.5			SI1.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515	5TCCB-V15	
C16	800			EF-001	MFT-1000				503C-D1	
C17	47			BPD-000047	D6-470		GP1K-470	UC-5447	5GA-Q47	
C18	.5-3				829-3		C7585A			
C19	10			SI10NP0	TC Z-10		NP0K-100	UC-5410	5TCC-Q1	
C20	5			SI5N750	TCN-5		N750K-050		5TCUP-V5	
C21	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C22	6.8			SI6.8NP0	TCZ-6.8		NP0K-6R8	ZT-5566	5TCCB-V68	
C23	800			EF-001	MFT-1000				503C-D1	
C24	800			EF-001	MFT-1000				503C-D1	
C25	120			SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C26	6.8		PA4328-13	SI6.8NP0	TCZ-6.8		NP0K-6R8	ZT-5566	5TCCB-V68	
C27	100		PA4332-3	SI100NP0	TCZ-100		NP0-333-101	ZT-531	5TCC-T1	
C28	1000		PA4334-1	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C29	3.3		PA4326-4	SI3.3NP0	TCZ-3.3		NP0K-3R3	ZT-5533	5TCCB-V33	
C30	100		PA4332-3	SI100NP0	TCZ-100		NP0-333-101	ZT-531	5TCC-T1	
C31	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C32	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C33	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	270		HK36M-271	SI270	D6-271		GP3K-271	UC-5327	5GA-T27	
C35	1000		HK36M-102	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C36	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C37	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C38	270		HK36M-271	SI270	D6-271		GP3K-271	UC-5327	5GA-T27	
C39	1000		HK36M-102	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C40	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C41	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C42	270		HK36M-271	SI270	D6-271		GP3K-271	UC-5327	5GA-T27	
C43	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C44	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C45	5000		PA4334-1	BPD-005	MD●502	TM5D5	811-005	DC-525	5HK-D5	
C46	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C47	6.8		PA4328-13	SI6.8NP0	TCZ-6.8		NP0K-6R8	ZT-5568	5TCCB-V68	
C48	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C49	4.7		PA4328-11	SI5NP0	TCZ-4.7		NP0K-4R7	ZT-555	5TCCB-V47	

PARTS LIST & DESCRIPTION

CAPACITORS (cont)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: SPARTON Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C50	47		CC30A-470F	SI47NP0	TCZ-47		NP0K-470	Z7-5447	5TCC-Q47	
C51	.1	400	PC42GL-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C52	.003	600	PC42GM-332	P688-003	D6-332	PTE6D3	GP2-333-302	PT623	6TM-D3	
C53	.047	600	PC42GL-473	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	Note 1
C54	.001	600	PC42GM-102	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C55	.1	600	PC42GM-104	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C56	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C57	2.2		PA4326-1	SI2.2NP0	TCZ-2.2		NP0K-2R2			
C58	100		PA4332-3	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C59	100		PA4332-3	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C60	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C61	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C62	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C63	33	500	MC60E-330	SI33	D6-330		GP1K-330	UC-5433	5GA-Q33	
C64	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C65	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C66	120		PA4332-4							
C67	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C68	1000		HK36M-102	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C69	.02	400	PC42CL-223	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C70	.033	200	PC42GK-333	P688-033						
C71	.001	400	PC42GL-103	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-81	
C72	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C73	.02	600	PC42CM-223	P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C74	.005	600	PC42GM-472	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C75	68	500	MC60E-680	SI68	D6-680		GP1K-680	UC-5468	5GA-Q68	
C76	.47	200	PC42DK-474	P288-47		PJ2P5		PT405	2TM-P47	
C77	.047	600	PC42GM-473	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C78	.001	600	PC42GM-102	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C79A	.002			P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
B	.001	400	PA4339-4	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C	.005			P688-006	D6-602	PTE6D6	GP2-333-502	PT625	6TM-D5	
C80	4700	500	MC61F-472	1464-005		1DR5D5		MCM65	MS-35	
C81	.0022	600	PC42GK-222	P688-0022	D6-222	PTE6S22	GP2-333-222	PT6122	6TM-D22	
C82	.1	400	PC42FL-104							
C83	.1	400	PC42FL-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C84	.1	400	PC42FL-104	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C85	1000	500	MC61E-102	1464-001		2R5D1		MCB255	MS-21	
C86	1000	500	MC61E-102	1464-001		2R5D1		MCB255	MS-21	
C87	.01	400	PC42FL-103	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-81	
C88	.0022	600	PC42GM-222	P688-0022	D6-222	PTE6D22	GP2-333-222	PT622	6TM-D22	
C89	5100	500	MC61E-152							
C90	.022	200	PC42GK-223	P888-022	D6-322	PTE6S22		PT612	6TM-S22	
C91	3900	500	MC63F-392	1464-004		1DR5D4		MCB63	MS-34	
C92	330	1000	PA4340-12							
C93	470	500	MC60E-471	1469-0005		2R5T5		MCB245	MS-35	
C94	82	500	MC50G-820							
C95	.01	400	PC42GL-103	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-81	
C96	.047	600	PC42GM-473	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C97	.47	200	PC42GK-474	P288-47		PJ2P5		PT405	2TM-P47	
C98	.1	600	PC42GM-104	P688-1		PTE6P1		PT601	6TM-P1	
C99	.1	600	PC42FM-104	P688-1		PTE6P1		PT601	6TM-P1	
C100	.1	600	PC42GM-104	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C101	.0027	1000	PC42FN-272							
C102	500	30000	PA4348							
C103	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C104	5000		PA4334-1	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C105	130	2000								

Note 1. Not used in all Models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: SPARTON Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	MALLORY Part No.	INSTALLATION NOTES
R1A	1Meg	½	PA-4450-2	QJ468 *	RTV-412		UF16L	Tone - Panel
B	330K	½	Not Req.		Not Req.		UR354T4	Volume -Rear
C	Shaft		Not Req.		Not Req.		Not Req.	Attach to R1A
D	Switch		Not Req.		Not Req.		UR-27	Attach to R1B
R2A	25KΩ	½	PA-4457	QJ-469 ♦	RTV-411		UF25L1 ††	Contrast - Panel
B	100KΩ	½	Not Req.		Not Req.		UR15L	Brightness - Rear
R3A	50KΩ	½	PA-4458	QJ-470 ■	RTV-410		UF54L ††	Horiz. Hold- Panel
B	1Meg	½	Not Req.		Not Req.		UR16L	Vert. Hold-Rear
R4A	2500Ω	2	PA-4464	WK2500	43A-2500	VK-132	R3500L	Vert. Lin.
B	Shaft		Not Req.	Not Req.	RS-3	Not Req.	D636	Attach to R4A
R5A	2.5Meg	½	PA4431	QJ1-239	AG-84-S	AB-83	SU-565	Vert.Size
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6	500Ω	4	PA-4448A			SVP-985	M500P	Horiz. Drive
R7	3000Ω	4	PA-4465-1					Vert. Peaking control

* CONCENTRIKIT EQUIVALENT-KIT K-2 BASE ELEMENTS & SHAFTS B11-137 & P1-118 (Panel)

♦ CONCENTRIKIT EQUIVALENT-KIT K-2 BASE ELEMENTS & SHAFTS B11-120 & P1-112 (Panel) B11-128 & R1-126 (Rear)

■ CONCENTRIKIT EQUIVALENT-KIT K-2 BASE ELEMENTS - SHAFTS B11-123 & P1-112 (Panel) B11-137 & R1-126 (Rear)

† Universal replacement (Mallory exact duplicate part No. UE814)

†† Universal replacement (Mallory exact duplicate part No. UE1003)

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SPARTON Part No.	IRC Part No.	NOTES
R8	15KΩ	½		BTS-15K	
R9	47KΩ	½		BTS-47K	
R10	100KΩ	½			
R11	160KΩ	½			
R12	1500Ω	½		BTS-1500	
R13	100KΩ	½			
R14	10KΩ	½			
R15	220KΩ	½		BTS-220K	
R16	10KΩ	½			
R17	15KΩ	½		BTS-15K	
R18	47Ω 5%	1	BR13G-470		
R19	82Ω 5%	1	BR13G-820		
R20	3.6K 5%	1	BR13G-362		
R21	100Ω	1	BR13N-101	BTS-100	
R22	100Ω	1	BR13N-101	BTS-100	
R23	1000Ω	½	BR13N-102	BTS-1000	
R24	33KΩ	½	BR13S-333	BTS-33K	
R25	56KΩ	½	BR13S-563	BTS-56K	
R26	100Ω	1	BR13N-101	BTS-100	
R27	100Ω	½	BR13N-101	BTS-100	
R28	4.7K 5%	½	BR13G-472		
R29	1000Ω	½	BR13N-102	BTS-1000	
R30	100Ω	½	BR13N-101	BTS-100	
R31	100Ω	½	BR13N-101	BTS-100	
R32	5.3KΩ	½	BR13S-532	BTS-3300	
R33	1000Ω	½	BR13N-102		
R34	15K 5%	½	BR13G-153		
R35	27KΩ	½	BR13S-273	BTA-27K	
R36	100Ω	½	BR13N-101	BTS-100	
R37	100Ω	½	BR13N-101	BTS-100	

RESISTORS (cont)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: SPARTON Part No.	IRC Part No.	NOTES
R38	4.3KΩ	½	BR12G-432	BTS 4300	
R39	120Ω	1		BTS-120	
R40	3.9KΩ	½	BR12G-392	BTS-3900	
R41	6.8KΩ	½	BR12S-682	BTS-6800	
R42	220KΩ	1	BR12S-224	BTS-220K	
R43	5600Ω	2	BR12G-562	BTB-5600	
R44	10KΩ	½	BR12S-103	BTS-10K	
R45	27KΩ	½	BR12S-273	BTS-27K	
R46	470KΩ	½	BR12S-474	BTS-470K	
R47	330KΩ	½	BR12N-334	BTS-330K	
R48	150KΩ	½	CR12S-154	BTA-150K	
R49	15KΩ	½	BR12S-153	BTS-15K	
R50	2.2K 5%	½	BR12G-222		
R51	2.2Meg	½	BR12S-225	BTS-2.2Meg	
R52	47KΩ	½	BR12S-473	BTS-47K	
R53	100KΩ	½	BR12S-104	BTS-100K	
R54	100KΩ	½	BR12N-104	BTS-100K	
R55	820Ω 5%	1	BR12G-821		
R56	1000Ω	½	BR12N-102	BTS-1000	
R57	470KΩ	½	BR12S-474	BTS-470K	
R58	1000Ω	½	BR12N-102	BTS-1000	
R59	150Ω	½	BR12G-151	BTS-150	
R60	47KΩ	½	BR12S-473	BTS-47K	
R61	4.7K 5%	½	BR12G-472		
R62	4.7K 5%	½	BR12G-472		
R63	10KΩ	½	BR12S-103	BTS-10K	
R64	6.8Meg	½	BR12N-685	BTS-6.8Meg	
R65	270KΩ	½	BR12S-274	BTS-270K	
R66	270KΩ	½	BR12S-274	BTS-270K	
R67	470KΩ	½	BR12N-474	BTS 470K	
R68	390Ω	1	CR12S-391	BTA-390	
R69	2500Ω	5	PA4200-24	1 3/4A-2500	
R70	180KΩ	½	BR12S-184	BTS-180K	
R71	2.2Meg	½	BR12N-225	BTS-2.2Meg	
R72	120KΩ	1	CR12S-124	BTA-120K	
R73	22KΩ	½	BR12S-223	BTS-22K	
R74	15KΩ	½	BR12S-153	BTS-15K	
R75	8.2KΩ	½	BR12S-822	BTS-8200	
R76	8.2KΩ	½	BR12S-822	BTS-8200	
R77	1.1Meg 5%	½	BR12G-115		
R78	100KΩ	½	BR12S-104	BTS-100K	
R79	6.8Meg	½	BR12S-685	BTS-6.8Meg	
R80	150KΩ	½	BR12S-154	BTS-150K	
R81	470KΩ	½	BR12N-474	BTS-470K	
R82	100KΩ	½	BR12S-104	BTS-100K	Note1
R83	5.6KΩ 5%	½	BR12G-562		
R84	2.2Meg	½	BR12S-224	BTS-220K	
R85	100Ω	1	BR12N-101	BTS-100	
R86	390Ω	1	CR12S-391	BTA-390	
R87	150KΩ	½	BR12S-154	BTS-150K	
R88	120KΩ	1	CR12S-124	BTA-120K	
R89	1000Ω	2	DR12S-102	BTB-1000	
R90	560Ω			BTS-560	
R91	560Ω			BTS-1000	
R92	1000Ω				
R93	4.7Meg	½	BR12S-475	BTS-4.7Meg	
R94	4700Ω 5%	2	BE12S-471		
R95	12KΩ	1	CR12S-123	BTA-12K	
R96	3.3KΩ 5%	½	BR12G-332		
R97	4.7Meg	½	BR12S-475	BTS-4.7Meg	
R98	3.9K 5%	½	BR12G-392		
R99	100K 5%	½	BR12G-104		
R100	100K 5%	½	BR12G-104		
R101	4.7Meg	½	BR12N-475	BTS-4.7Meg	
R102	470KΩ	½	BR12S-474	BTS-470K	
R103	1.5K 5%	½	BR12G-152		
R104	8.2K 5%	½	BR12G-822		
R105	100KΩ	½	BR12S-104	BTS-100K	
R106	180KΩ 5%	½			
R107	10KΩ	½	BR12S-103	BTS-10K	
R108	1Meg	½	BR12S-105	BTS-1Meg	
R109	100Ω	½	BR12N-101	BTS-100	
R110	150Ω	5	PA4200-22	1 3/4-150	
R111	15KΩ	2	DR12S-153	BTB-15K	
R112	33KΩ	2	DR12S-333	BTA-33K	
R113	11KΩ	5	PA4200-27	1 3/4A-1100	
R114	220KΩ	1	BR12N-224	BTS-220K	
R115	7.5Ω	4	BRW12S-75		
R116	4000Ω	5	PA4200-25	1 3/4-4000	
R117	270Ω	2	DR12S-271	BTB-270	
R118	270Ω	2	DR12S-271	BTB-270	
R119	180KΩ	1		BTA-180K	
R120	12KΩ	2	DR12S-123	BTB-12K	

Note 1 Some models may use a 4.7KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: SPARTON Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	TRIAD Part No.	RCA TYPE No.
T1	117VAC ⑥1.2A	340VCT .100ADC	5VAC ⑤ 3A	6.3VAC ⑤ 2.6A SEC. 4 6.3VAC ⑤ 1.4A	44033-1		P-8165 ①			
T2	117VAC ⑤ 1.6A	646VCT .240ADC	5VAC ⑥ 6A		44034-1					

① Tap low voltage taps on high voltage secondary.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: SPARTON Part No.	STANCOR Part No	MERIT Part No	CHICAGO Part No	TRIAD Part No	RCA TYPE No.	NOTES
T3	150Ω	820Ω	AB47006-4	A-8111	A-3000	TSO-5 ①	A-97X ①		Vert.Osc.Trans. Horiz.Output Trans.
T4	166.4Ω	12.9Ωtap	PC-70019						
	tap ⑤	⑤ 4.5Ω							
	6.4Ω	SEC. 4 8Ω tap ⑤ 3.3Ω SEC. 3 1.4Ω SEC. 4 6Ω							
T5	600Ω	12Ω	AB-44070-1	A-8113 ①	A-3036 ①	TSO-2 ②	A-99X ①		Vert.Output Trans. Horiz.Deflection Coils
T6A	16Ω		AC-6088-1 ③	MDF-90 ④					Vert.Deflection Coils Horiz.Linearity Coil Width Coil
B	45Ω								
T7	6.2Ω		AA-6400-3		MWC-2 ④	TW-5	WC-12 ⑤		
T8	6.2Ω		AA-6400-3		MWC-2 ④	TW-5	WC-12 ⑤		

① Drill one new mounting hole.
② Drill new mounting holes.
③ Yoke assembly contains yoke PC-70020 .
④ Enlarge mounting holes.
⑤ Connect to coded blue and green terminals.
⑥ Use original deflection coil network.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: SPARTON Part No.	STANCOR Part No.	MERIT Part No.	CHICAGO Part No.	TRIAD Part No.	NOTES
T9	5.4KΩ	3.2Ω	26Ω	.32Ω	44066-3	A-3823	A-3020	RO-13 ①	S-9Z	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: SPARTON Part No.	VIKING Part No.	QUAM Part No.	NOTES
SP1	10"	PM	3.2Ω	PC-63000-12	10J11	10A31	

PARTS LIST & DESCRIPTION (continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SPARTON PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Coils	0ΩCT	0Ω					
L2	Fil. Choke	0Ω						
L3	Neutr.Coil	0Ω						
L4	RF, Mixer Grid & Osc. Coils	0Ω						
L5	Fil. Choke	0Ω						
L6	RF Choke	0Ω						
L7	1st.Video IF	1Ω						
L8	RF Choke	1.2Ω						
L9	Accompanying Sound Trap	0Ω		AB43523-12	19-1020	TV-112	6171	
L10	Fil. Choke	.1Ω		AA6651-1	19-3001	TV-189	4608	2 Microhenries
L11	Adj.Channel Sound Trap	0Ω		AB43523-13	20-1006		6171A	
L12	2nd.Video IF	.1Ω		AA6408-1	17-1003	TV-102	6188	
L13	Fil. Choke	.1Ω		AA6651-1	19-3001	TV-189	4608	2 Microhenries
L14	3rd.Video IF	.1Ω		AA6408-1	17-1004	TV-102	6189	
L15	Fil. Choke	.1Ω		AA6651-1	19-3001	TV-189	4608	2 Microhenries
L16	4th.Video IF	.1Ω		AA6408-1	17-1004	TV-103	6189	
L17	Fil. Choke	.1Ω		AA6651-1	19-3001	TV-189	4608	2 Microhenries
L18	RF Choke	2.7Ω		AA6650-1			4626	25 Microhenries
L19	5th.Video IF	.5Ω		AA6364-1	17-1001 *	TV-100 *	6186 *	
L20	Fil. Choke	.1Ω		AA6651-1	19-3001	TV-189	4608	2 Microhenries
L21	RF Choke	2.7Ω		AA6650-1			4626	25 Microhenries
L22	Series Peaking Coil	8.5Ω		AA6402-6	19-3160 †		4644 †	146 Microhenries-wound on 4.7KΩ resistor
L23	Shunt Peaking Coil	18Ω		AA6613-8	19-3660	TV-188	4650	600 Microhenries
L24	Series Peaking Coil	10Ω		AA6402-7	19-4200	TV-184 ▲	4646 ▲	213 Microhenries Wound on 6.8Ω resistor
L25	4.5MC Trap	1.9Ω		AA6407-1	20-1004	TV-151	1470	
L26	Shunt Peaking Coil	15Ω		AA6613-10	19-1923	TV-188	4566	420 Microhenries
L27	1st.Sound IF	1.7Ω		AA6364-2	17-1031			
L28	2nd. Sound IF	2.1Ω	2.1Ω	AA6667-5	17-1021 ■	TV-108 ■	1466 ■	
L29	Ratio Det.	4.8Ω	1.2ΩCT	AA6684-4	17-3493 ♦	TV-115 ◓	6205 ◓	Tertiary winding-.6Ω
L30	Horiz. Osc.	70Ω		AA6403-2	19-1576	TV-163	6210	
L31	RF Choke	.2Ω		AA6650-9			4608	4 Microhenries
L32	RF Choke	.2Ω		AA6650-9			4608	4 Microhenries

* Detune trap.
† Parallel with 4.7KΩ resistor
▲ Parallel with 6.8KΩ resistor
■ Drill new mounting holes.
♦ Disconnect C66
◓ Use adaptor plate and disconnect C66.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA SPARTON PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L33	.240ADC	80Ω	5.6 Hy.	47012-1				C-15X
L34	.100ADC	108Ω	3 Hy.	47009-1	C-2303 ①	C-2994	TR-3300 ①	C-9X

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA SPARTON PART No. FUSE	SPARTON PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	3/8A 250V	PA4216-1		312.375 (3AG-3/8A)	101003 *	AGC 3/8	4503 *

* 2 Required

MISCELLANEOUS

ITEM No.	PART NAME	SPARTON PART No.	NOTES
M2	Dial Light		#47
M3	Tuner	PD93174-5	VHF
M4	Focus Magnet		Includes centering assembly
M5	Ion Trap	PA1248	
M6	Correction Magnet	PC63168	(4 used) comes as on unit.
M7	Tuner	PC70021	UHF Models 24542 & 25544 only
M8	Trap	PA5353	UHF Input Filter (Models 24542 & 25544 only)
M9	Crystal		1N72 - UHF Converter (Models 24542 & 25544 only)
M10	Switch	PB42013	UHF-VHF Selector (front) Models 24542 & 25544 only
M11	Switch	PB42014	UHF-VHF Selector (rear) Models 24542 & 25544 only
	Knob	PA5669-1	Vert. Hold - Model 24542
	Knob	PA5669-2	Vert. Hold - Model 25544
	Knob	PA5670-1	Brightness - Model 24542
	Knob	PA5670-2	Brightness - Model 25544
	Knob	PA5671-1	Off/On Volume - Model 24542
	Knob	PA5671-2	Off/On Volume - Model 25544
	Knob	PA5660-1	Horiz.Hold & Contrast - Model 26542 (2 used)
	Knob	PA5660-1	Horiz. Hold, Contrast & Tone - Model 24542 (2 used)
	Knob	PA5660-2	Horiz. Hold,& Contrast - Model 26544 (2 used)
	Knob	PA5660-2	Horiz. Hold, Contrast & tone - Model 25544 (2 used)
	Knob	PA5674-1	UHF-VHF Switch (dummy) Model 24542
	Knob	PA5674-2	UHF-VHF Switch (dummy) Model 25544
	Knob	AB43085-1	UHF - Fine tuning Model 24542
	Knob	AB43085-2	UHF - Fine tuning Model 25544
	Knob	PB40363-1	VHF - Fine tuning Models 26542, 24542
	Knob	PB40363-2	VHF- Tine tuning Models 26544, 25544
	Knob	AB43087-1	UHF Channel Ind. Model 24542
	Knob	AB43087-2	UHF Channel Ind. Model 25544
	Knob	AB43088-1	VHF Channel Ind. Models 26542, 24542
	Knob	AB43088-2	VHF Channel Ind. Models 26544, 25544
	Knob	PB40364-1	Tone Control, Model 26542
	Knob	PB40364-2	Tone Control, Model 26544
	Knob	AB43594-1	Off/On Volume Model 26542
	Knob	AB43594-2	Off/On Volume Model 26544
	Knob	PA5659-1	Dummy Off/On Volume & Tone (2 used) Model 26542
	Knob	PA5659-2	Dummy Off/On Volume & Tone (2 used) Model 26544
	Mask	PE97001	
	Safety Glass	PB40389	

TROUBLE SHOOTING AIDS (cont)

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POWER

DEAD SET

If filaments fail to light, check AC interlock assembly, switch on volume control and T1. If filaments light, substitute V26, V27 and V28. Check B+ filter and decoupling components.

SMALL AND/OR DIM RASTER

Substitute V27 and V28. Check C1.

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check fuse M1. Check by substitution V21, V22, V23, V24 and V25. Check waveform W16.

If Satisfactory,	If Unsatisfactory
Check R115, C102, T4, T6A and other associated components.	Check components associated with V21 and V22.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V21, V22, V23, V24, V25, V27 and V28. Proceed as outlined under "Loss of High Voltage".

BLOOMING

Check by substitution V25, V24, V23, V22, V21, V27 and V28. Check R115, C102, T4, T6A, picture tube and other associated components.

GENERAL

RASTER SOUND NO PIX

See "Loss of Video".

RASTER NO SOUND NO PIX

Check V3, V4, V5, V6, V7, V8 and V9. Check associated components.

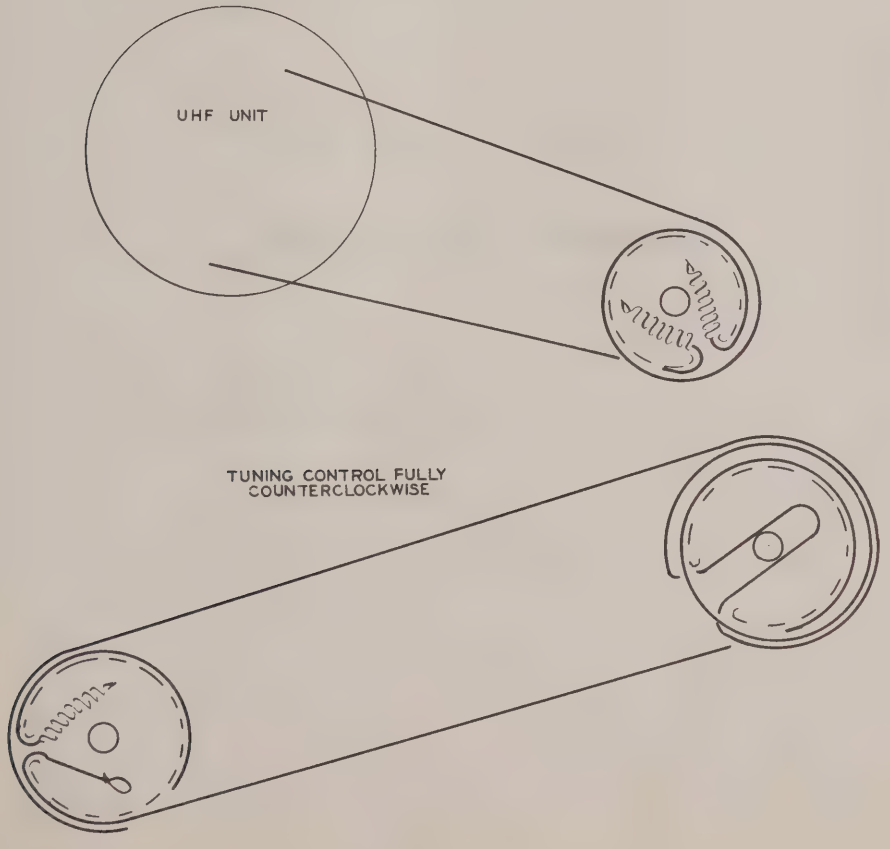
NO RASTER NO SOUND

See "Dead Set".

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

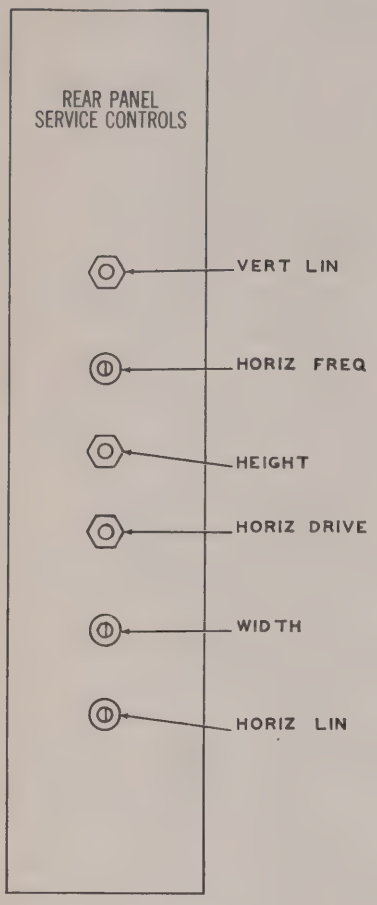
Symptoms shown are assumed and are not indicative of the quality and workmanship of this receiving equipment.



DIAL CORD STRINGING

SERVICING IN THE FIELD

SERVICE ADJUSTMENT LOCATION



TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the RF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the channel selector shaft.

PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass remove 4 wood screws holding metal strips at top and sides of safety glass. Remove metal strips and safety glass. (Use extreme caution when removing safety glass).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be made from the rear panel of the chassis. Set the horizontal hold control at the mid-position of its range and adjust the horizontal oscillator slug (L30) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L29) located on bottom of chassis. (See tube placement chart). Remove of chassis is necessary to adjust secondary.

FUSES

One fuse is used for horizontal sweep protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

ANTI-PIN CUSHION CORRECTION

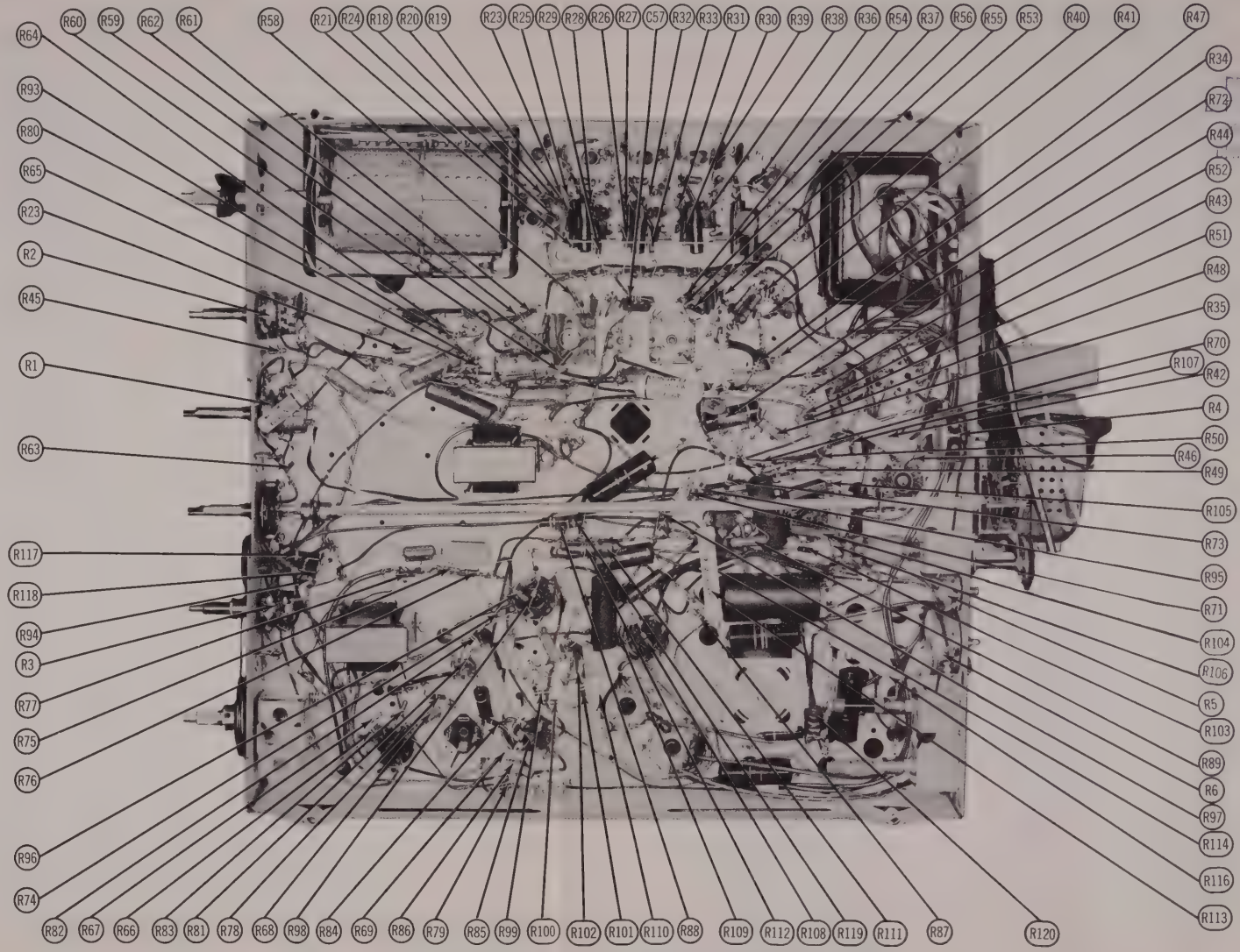
Reduce the size of the raster until all four sides of the picture are visible.

Adjust the corrector magnets until the edges of the raster are as straight as possible.

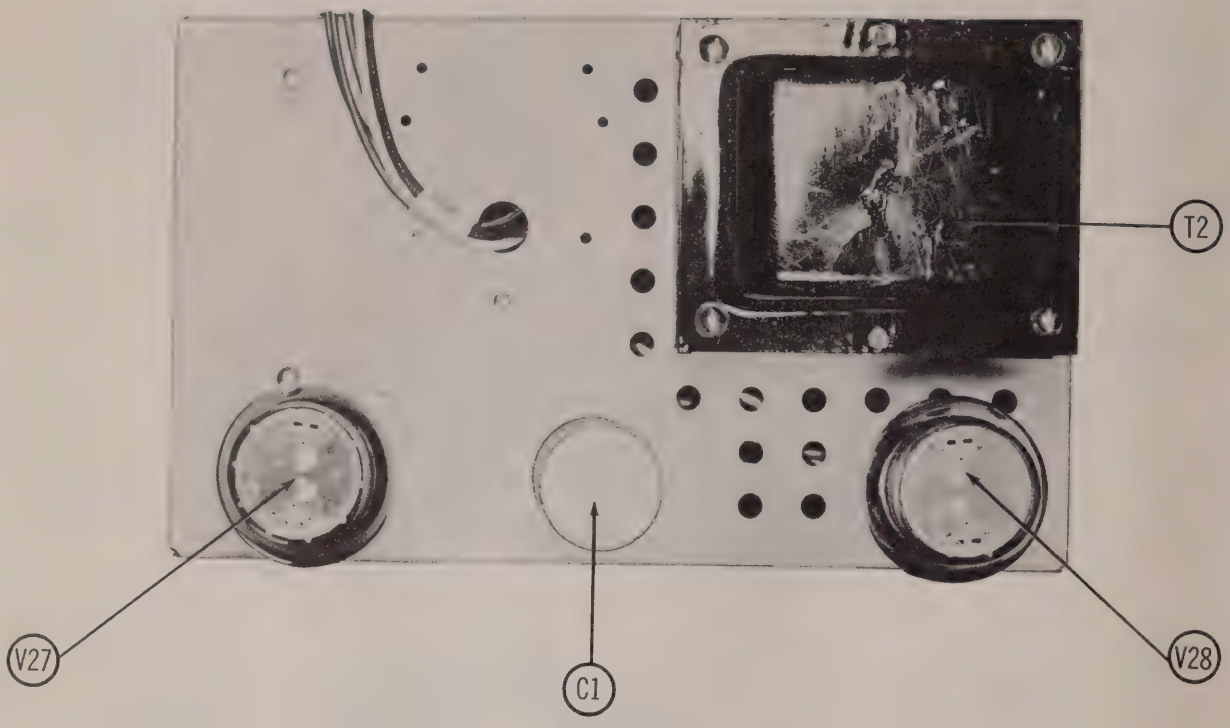
Restore picture to normal size.

DISASSEMBLY INSTRUCTIONS

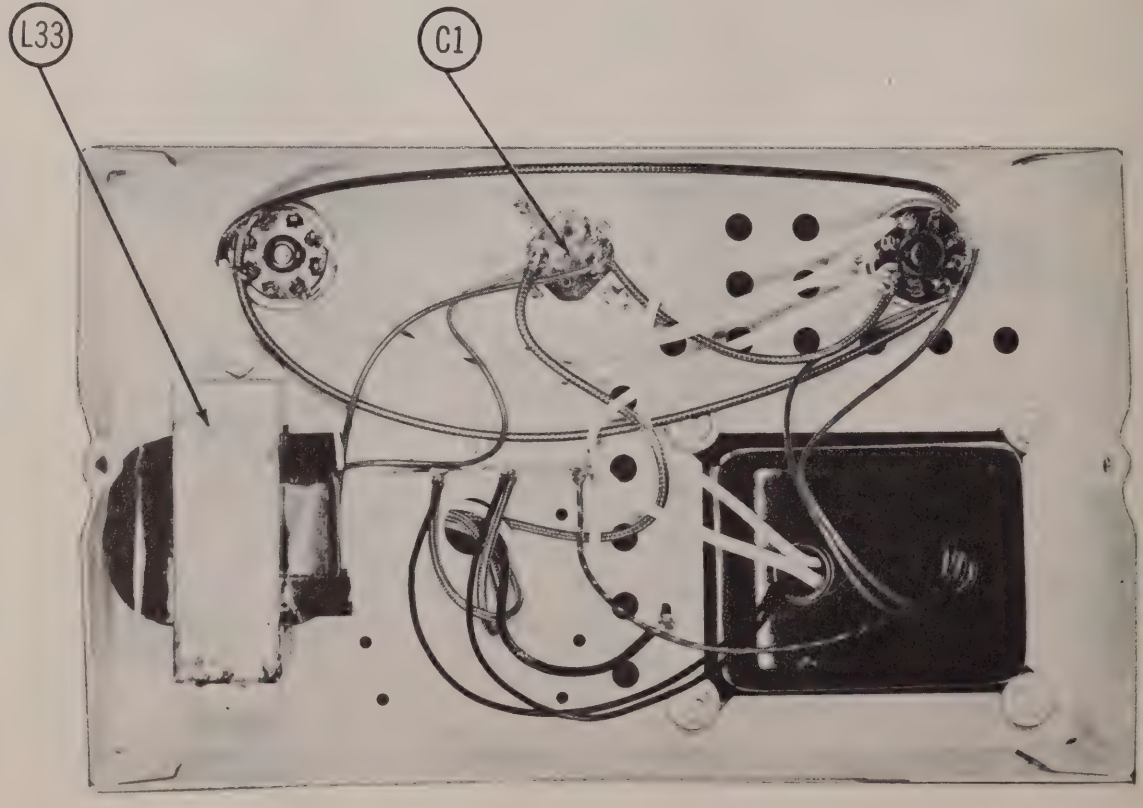
1. Remove 11 push on type control knobs from front panel.
2. Disconnect UHF antenna lead.
3. Remove 10 wood screws. Remove rear cover (top part of cabinet back).
4. Remove 10 wood screws. Remove w ire screen. (lower part of cabinet back).
5. Disconnect built-in antenna, yoke plug, speaker leads, power plug, CRT socket, and HV lead.
6. Remove 2 wood screws. Remove chassis mounting board.
7. Remove 4 chassis bolts. Remove main chassis.
8. Remove 2 chassis bolts. Remove power chassis.
9. Remove 4 speaker nuts. Remove speaker.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



POWER SUPPLY CHASSIS-TOP VIEW



POWER SUPPLY CHASSIS-BOTTOM VIEW

STROMBERG-CARLSON
MODELS 521CDM, CM, CO, C5D, TM, TO

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STROMBERG-CARLSON
MODELS 521CDM, CM, CO, C5D, TM, TO

STROMBERG-CARLSON MODEL 521TM

TRADE NAME	Stromberg-Carlson Models 521CDM, 521CM, 521CO, 521C5D, 521TM, 521TO (521 Series)
MANUFACTURER	Stromberg-Carlson Co., Service Dept., 302 N. Goodman St., Rochester, N.Y.
TYPE SET	Television Receiver
TUBES	Twenty-four
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING 2.24 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13, Video IF 26.4MC, Sound IF 21.9MC (Intercarrier)

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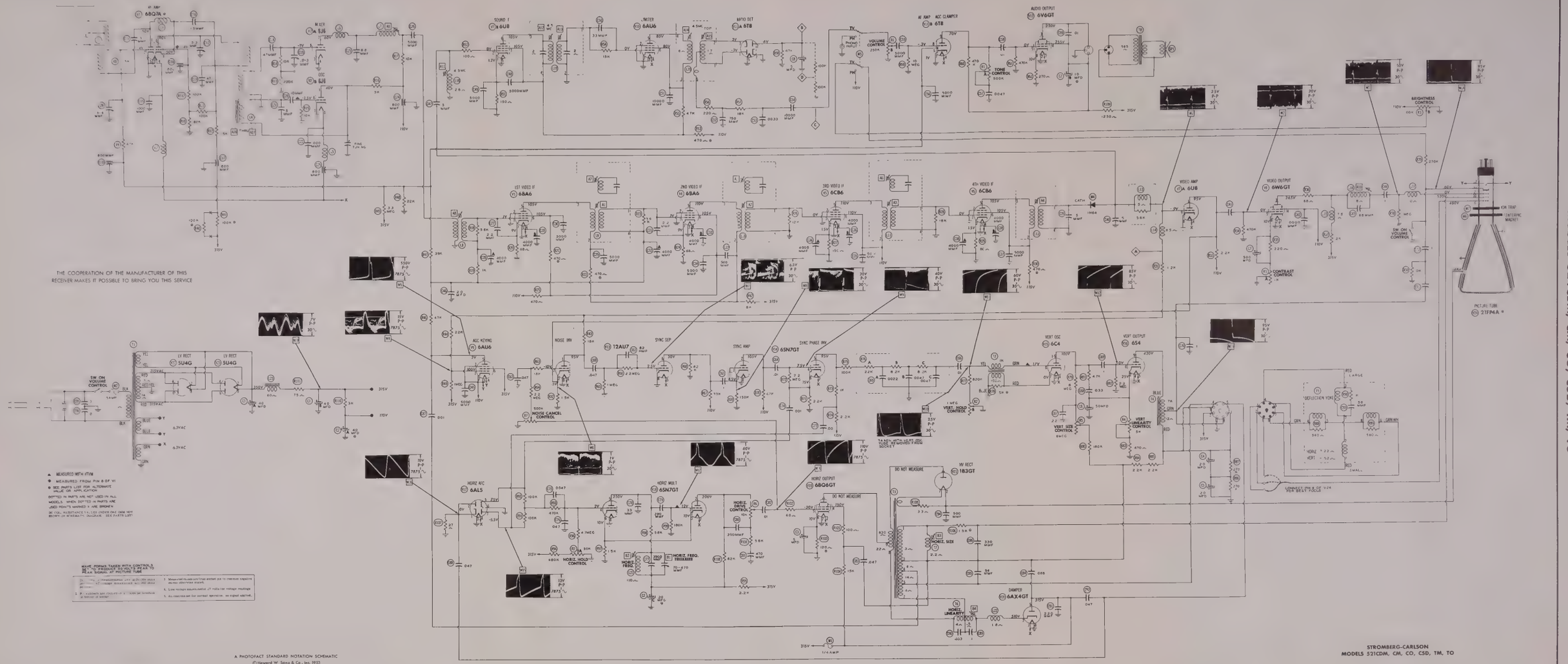
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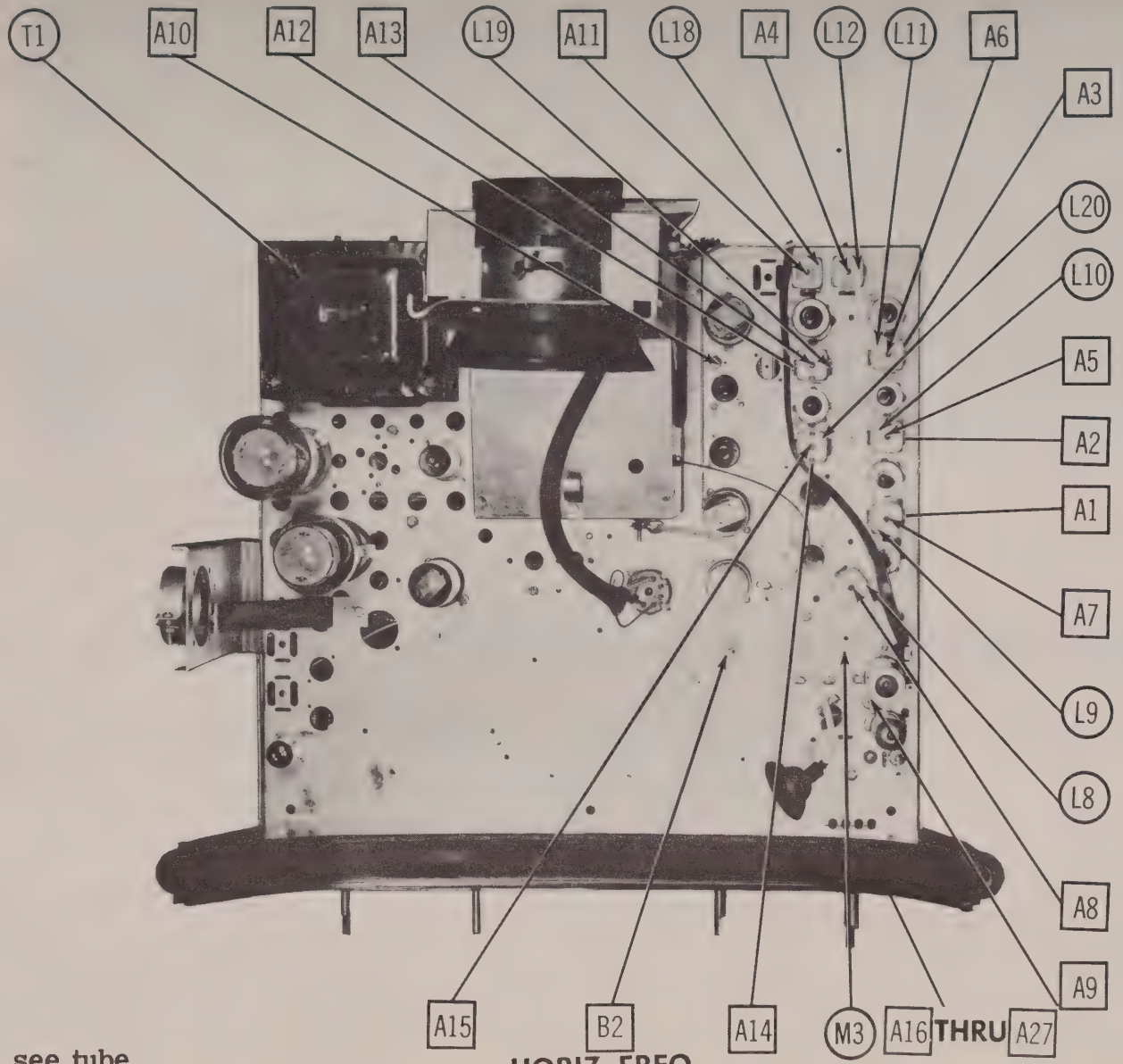

HORIZ. FREQ.
CHASSIS TOP VIEW

For tube location see tube placement chart on page 5.

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CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

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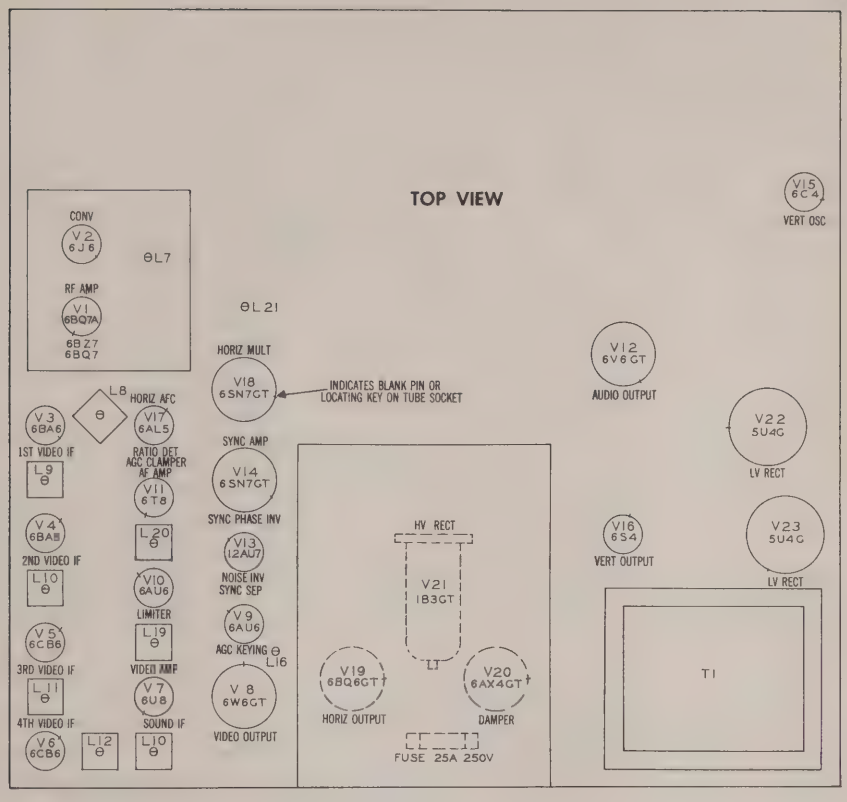
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V22, V23 Fuse (M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V7, V8, V24**
Has pic, no sound - **V7, V10, V11, V12**
Overloaded picture - **V9, V11**

SYNC FAILURE
No vert. sync - **V14, V15, V16**
No horiz. sync - **V14, V17, V18**
No vert. or horiz. sync - **V13, V14**

SWEEP FAILURE
No raster, has sound - **V18, V19, V20, V21, V24, Fuse (M1)**
No vertical deflection - **V15, V16**
Poor vert. linearity or foldover - **V15, V16**
Poor horiz. linearity or foldover - **V18, V19, V20**
Narrow picture - **V18, V19, V20, V21, V22, V23**
Vert. off freq. - **V14, V15, V16**
Horiz. off freq. - **V14, V17, V18**

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator (V18).

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded side of C46. Connect the positive lead to chassis.
During Video IF Alignment attenuate the generator output to maintain 2 volts peak to peak response.
Set noise cancellation control fully counter clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	100MMF	High side to pin 1 (grid) of 6BA6 (V3). Low side to chassis.	Not used	23.7 (Unmod.)	Any	Use VTVM. DC probe to point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	"	23.0MC	"	"	A2	"
3.	"	"	"	26.0MC	"	"	A3	"
4.	"	"	"	25.3MC	"	"	A4	"
5.	"	"	"	21.9MC	"	"	A5	Adjust for MINIMUM deflection.
6.	"	"	"	27.9MC	"	"	A6	"
7.	"	"	24MC (10MC Swp)	21.9MC	"	Vert. Amp. thru 47KΩ to point (A). Low side to chassis.	A7	Adjust for dip in response curve as indicated in Fig. 1.
8.	"	"	"	22.7MC 26.4MC	"	"		Check for response curve similar to Fig. 2 with 22.7MC and 24.6MC at 70%. If necessary retouch A1 thru A4 for desired response, then check A5, A7 and A6 for any change.
9.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	"	"	"	"	A8, A9	Adjust for response curve similar to Fig. 3. with markers at 50% response.

4.5MC TRAP ALIGNMENT

Set the contrast control for maximum contrast.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	100MMF	High side to point (A). Low side to chassis.	Not Used	4.5MC	Any	Vert. Amp. thru detector (Fig. 4) to pin2 of picture tube. Low side to chassis.	A10	Adjust for maximum indication on scope.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
11.	100MMF	High side to pin 2 (grid) of 6U8 (V7). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B). Common to chassis.	A11, A12, A13, A14	Adjust for maximum deflection.
12.	"	"	"	"	DC probe to point (C). Common to point (D).	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	100MMF	High side to pin 2 (grid) of 6U8 (V7). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point (B). Low side to chassis.	A11, A12, A13, A14	Disconnect stabilizer capacitor C8. Adjust for curve of maximum amplitude and symmetry as in Fig. 5.
12.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A15	Reconnect stabilizer capacitor C8. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 6. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

FIG.1

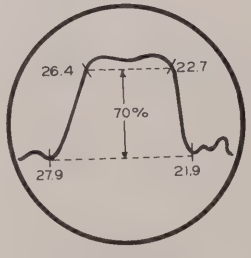


FIG.2

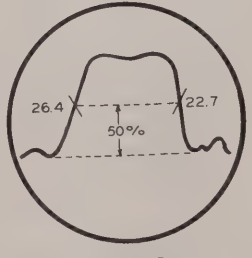


FIG.3

ALIGNMENT INSTRUCTIONS (cont)

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DENVER, COLORADO

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
The oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch shaft is turned to each channel.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point (A). Low side to chassis.	A16	Adjust to place sound marker in trap notch as in Fig. 7. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A17	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A18	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A19	
			189MC (10MC Swp)	187.25MC 191.25MC	9		A20	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A21	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A22	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A23	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A24	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A25	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A26	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A27	

RF ALIGNMENT

The RF portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

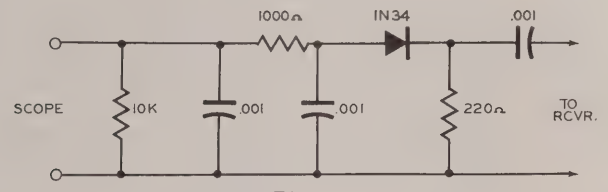


FIG. 4

FIG. 5

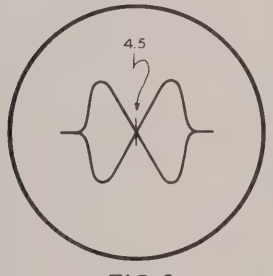


FIG. 6

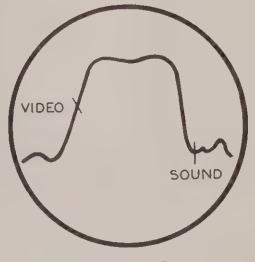
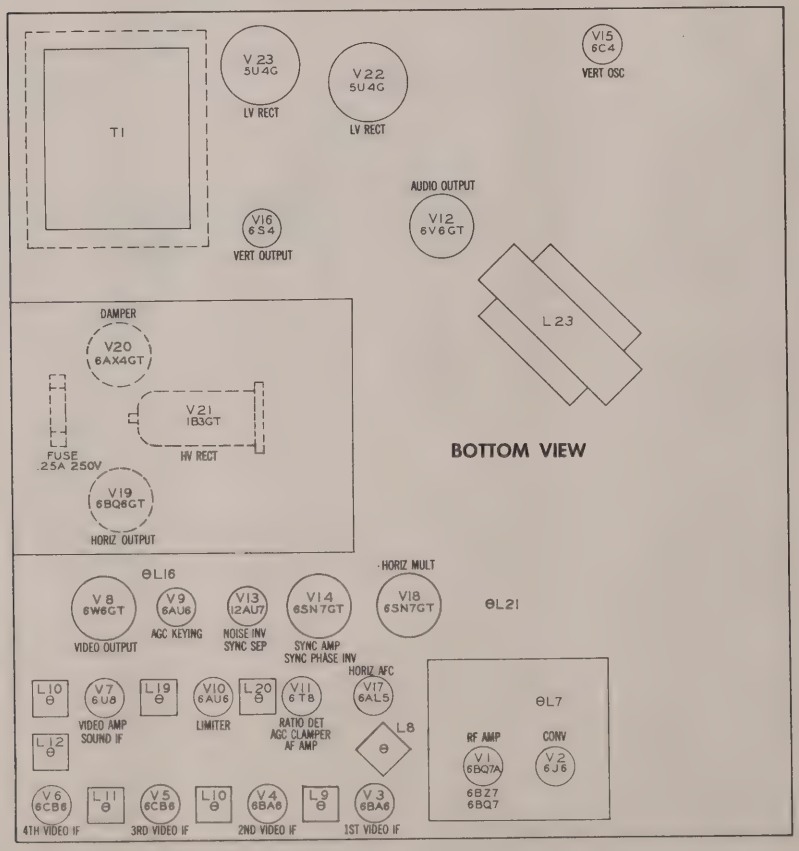


FIG. 7

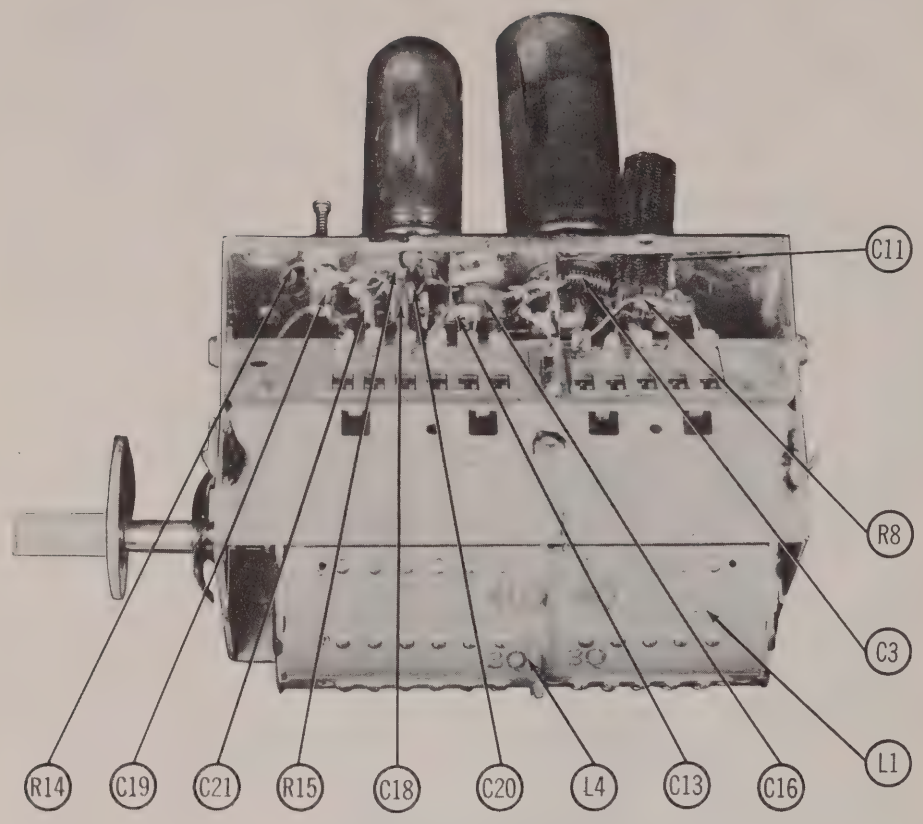
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	INF	69KΩ	0Ω	.1Ω	0Ω	†51KΩ	170KΩ	INF	0Ω
V 2	6J6	†18KΩ	†13KΩ	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6BA6	62KΩ	0Ω	0Ω	.1Ω	†8.6KΩ	†4.1KΩ	68Ω		
V 4	6BA6	61KΩ	0Ω	0Ω	.1Ω	†8KΩ	†3.6KΩ	68Ω		
V 5	6CB6	.8Ω	150Ω	0Ω	.1Ω	†3.1 KΩ	†3.1KΩ	0Ω		
V 6	6CB6	.7Ω	180Ω	0Ω	.1Ω	†3.6KΩ	†3.6KΩ	0Ω		
V 7	6U8	†5.3KΩ	100Ω	†3.6KΩ	.1Ω	0Ω	†3.6KΩ	150Ω	0Ω	2.7KΩ
V 8	6W6GT	0Ω	0Ω	†2.2KΩ	†4KΩ	470KΩ	#1.5KΩ	.1Ω	700Ω	
V 9	6AU6	†27.4KΩ	†3.1KΩ	†3.1KΩ	†3.1KΩ	110KΩ	†135Ω	†3.1KΩ		
V 10	6AU6	15KΩ	0Ω	0Ω	.1Ω	†8.3KΩ	†8.3KΩ	0Ω		
V 11	6T8	INF	47KΩ	INF	.1Ω	0Ω	22KΩ	0Ω	10Meg	†470KΩ
V 12	6V6GT	0Ω	0Ω	†2KΩ	†1.4KΩ	470KΩ	INF	.1Ω	270Ω	
V 13	12AU7	†23.3KΩ	2.4Meg	1.5KΩ	.1Ω	.1Ω	33KΩ	3.2Meg	0Ω	0Ω
V 14	6SN7GT	0Ω	†50KΩ	150KΩ	2.2Meg	†6.2KΩ	2.2KΩ	.1Ω	0Ω	
V 15	6C4	#4.2Meg	INF	0Ω	.1Ω	#4.2Meg	1.5Meg	190Ω		
V 16	6S4	INF	3.6KΩ	INF	0Ω	.1Ω	2.2Meg	INF	INF	#6.1KΩ
V 17	6AL5	27Ω	27Ω	0Ω	.1Ω	5.3Meg	0Ω	5.3Meg		
V 18	6SN7GT	180KΩ	†84KΩ	1.5KΩ	4.7Meg	†8KΩ	1.5KΩ	.1Ω	0Ω	
V 19	6BQ6GT	INF	.1Ω	INF	†15.2KΩ	500KΩ	†15.1KΩ	0Ω	120Ω	TOP CAP #30Ω
V 20	6AX4GT	INF	INF	350KΩ	INF	†135Ω	INF	.1Ω	0Ω	
V 21	1B3GT		PINS	1 - 8	HAVE	INFINITE	RESISTANCE			TOP CAP #660Ω
V 22	5U4G	INF	40KΩ	†3.1KΩ	13.5Ω	INF	14.2Ω	INF	40KΩ	
V 23	5U4G	INF	40KΩ	INF	13.5Ω	INF	14.2Ω	INF	40KΩ	
V 24	21FP4A	†3.1KΩ	1Meg	PIN 6 #4.4KΩ	PIN 10 #1.5KΩ	PIN 11 300KΩ	PIN 12 †3.1KΩ			

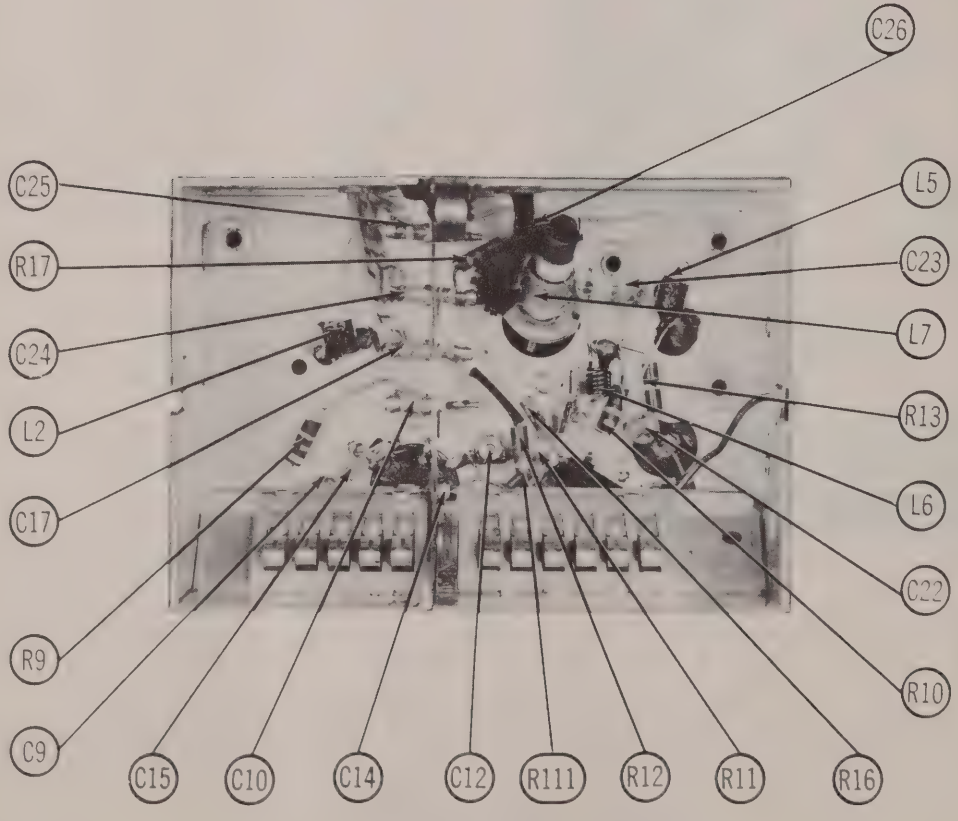
† MEASURED FROM PIN 8 OF V23
# MEASURED FROM PIN 3 OF V20



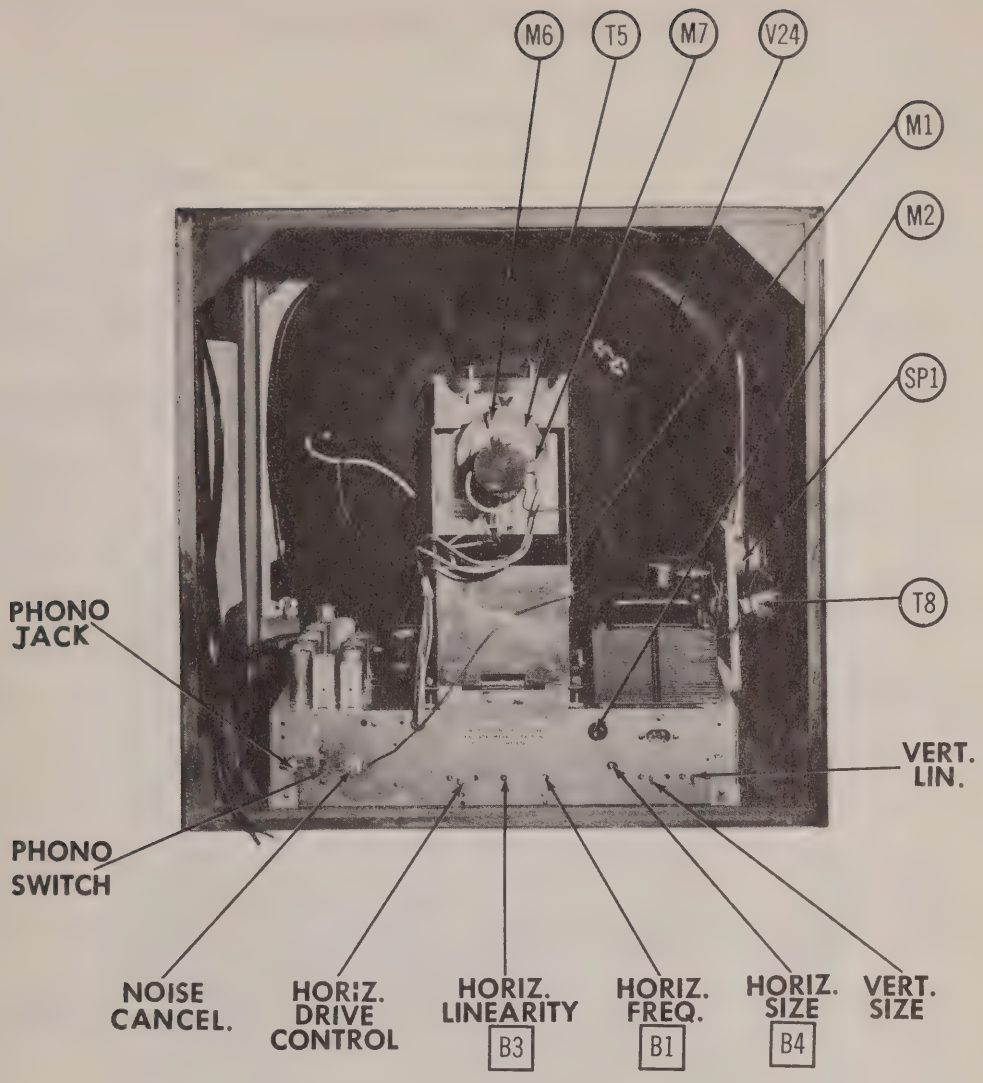
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern. Set the horizontal hold control at the mid-position of its range and adjust the horizontal frequency trimmer (B1) until the picture synchronizes horizontally.

If adjustment of B1 will not synchronize the picture set B1 to the center of its range and adjust the horizontal frequency slug (B2) for synchronization.

Adjust horizontal drive control for the best compromise between brightness and horizontal linearity.

Adjust the horizontal size slug (B3) for a picture slightly wider than necessary to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

ADJUSTMENT FOR ELECTROSTATIC FOCUS

Adjust the Ion trap in normal manner where maximumbrightness and in-focus picture can be obtained. Better focus can be obtained if the centering magnet is placed away from the ion trap and close to the deflection yoke.

Proper connection of the focusing anode is made at the factory. When the picture tube is replaced the anode should be tried at one three points : (1) Ground (2) B+ (3) Boosted B+. These points are found at pins 1, 2, and 3 respectively, of the yoke plug. The focusing anode lead should be left at the pin which secures best picture focus.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

See "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V18, V19, V20, V22 and V23. Check adjustments of B3 and B4. Check waveform W18.

If Satisfactory	If Unsatisfactory
Check C83, C84, C89, C90, C92, T3, T5A, R104 and other associated circuit components.	Check C78, C79, C80, C81, C82, R99, R100, R7, R6 and other associated components.

DRIVE LINES

Check by substitution V18, V19 and V20. Check adjustment of horizontal drive control. Check components associated with V18, V19 and V20.

COMPRESSED LEFT SIDE

Check by substitution V18, V19 and V20. Check adjustments B3 and B4. Check horizontal output and damper circuit components especially T3 and T5A.

FOLDS

Check by substitution V18, V19 and V20. Check horizontal sweep circuit components especially damper filter capacitors.

XMAS TREE EFFECT

Substitute V18. Check C77, C78, C79, L21 and other components associated with V18.

VERTICAL

LOSS OF SWEEP

Check by substitution V15 and V16. Check waveform W12.

If Satisfactory	If Unsatisfactory
Check T4, T5B, R84, R85 and other associated components.	Check R80, R5, R82, R79, C69 and other associated circuit components.

INSUFFICIENT SWEEP

Check by substitution V15 and V16. Check adjustment of height and vertical linearity controls. Proceed as outlined under "Loss of Sweep".

COMPRESSED AT BOTTOM

Check by substitution V15 and V16. Check C68, C69, R81, R82, C6 and other associated components.

COMPRESSED AT TOP

Check by substitution V15 and V16. Check T4, T5B, R83, R4, C6 and other associated circuit components.

FOLDS

Check by substitution V15 and V16. Check associated components especially C69 and R82.

SYNC

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Check by substitution V17 and V18. Adjust B1 and B2 following procedure outlined in the alignment section. Check associated circuit components especially those associated with V18.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Check by substitution V14 and V15. Check waveform W10 .

If Satisfactory	If Unsatisfactory
Check components associated with V15.	Check vertical integrator network and components associated with V14.

LOSS OF HORIZONTAL AND VERTICAL SYNC

Check by substitution V13 and V14. Check associated circuit components.

CRITICAL HORIZONTAL AND VERTICAL SYNC

Check adjustment of the noise cancellation control. Check by substitution V13 and V14. Check components associated with these stages.

VIDEO

LOSS OF VIDEO

Check by substitution V7 and V8. Check C41, C44, picture tube and other associated circuit components.

SOUND BARS (4.5MC BEAT)

Check adjustment of local oscillator. Check adjustment A10. Check video IF alignment.

NEGATIVE PIX

Check by substitution V7, V8 and V9. Check AGC circuit for proper operation. Check components associated with V7A and V8. Check picture tube.

POOR CONTRAST

Check by substitution V7 and V8. Check video detector crystal and assembly. Check picture tube and other associated components. Check video IF tubes and other components.

SMEAR

Check by substitution V7 and V8. Check video detector crystal and assembly. Check C41, C44, R34, R37, R38, picture and other associated circuit components.

WIDE BLACK BAR ACROSS PIX

Check V1, V2, V3, V4, V5, V6, V7 and V8 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V7, V10, V11 and V12. Check stages of V11B and V12 using an audio signal generator. Connect signal across R59.

If Satisfactory	If Unsatisfactory
Check audio IF and ratio detector alignment and circuit components.	Check components associated with V11B and V12 especially C58 and R60.

BUZZ

Adjust A15 for minimum buzz. If buzz is still objectionable substitute V11 and readjust A14 and A15. Follow audio IF alignment procedure. Check components associated with V11A. Check video IF stages for an overloaded stage.

DISTORTED

Check by substitution V7, V10, V11 and V12. Follow procedure outlined under "Weak or No Sound".

PROPERTY OF
L. F. BLANKENSHIP
2024 MEADE ST.
COLORADO

CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

STROMBERG-CARLSON
MODELS 521CDM, CM, CO, C5D, TM, TO

L F F ...RSHIP
3924 MEADE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1A	RF Amplifier	6BQ7A	6BQ7A	9AJ	
B	RF Amplifier	6B27	6B27	9AJ	
C	RF Amplifier	6BQ7	6BQ7	9AJ	
V3	Converter	6J8	6J8	7BF	
V3	1st. Video IF Amp.	6BA6	6BA6	7BK	
V4	2nd. Video IF Amp.	6BA6	6BA6	7BK	
V5	3rd. Video IF Amp.	6CB6	6CB6	TCM	
V6	4th. Video IF Amp.	6CB6	6CB6	TCM	
V7	Video Amplifier - 1st. Sound IF Amp.	6U8	6U8	9AE	
V8	Video Output	6W6GT	6W6GT	7S	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	Limiter	6AU6	6AU6	7BK	
V11	Ratio Detector - AF Amplifier				
	AGC Clamper	6T8	6T8	9H	
V12	Audio Output	6V6GT	6V6GT	7S	
V13	Noise Inverter - Sync Separator	12AU7	12AU7	9A	
V14	Sync Amplifier - Sync Phase Inv.	6SN7GT	6SN7GT	9BD	
V15	Vert. Oscillator -	6C4	6C4	6BG	
V16	Vert. Output	6S4	6S4	6AU	
V17	Horiz. AFC	6AL5	6AL5	6BT	
V18	Horiz. Mult.	6SN7GT	6SN7GT	9BD	
V19	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V20	Damper	6AX4GT	6AX4GT	4CG	
V21	HV Rectifier	3BN3C	1B3GT	3C	
V22	LV Rectifier	5U4G	5U4G	5T	
V23	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	RTMA BASE TYPE	NOTES
V24A	21FP4A	21FP4A 21FP4 ①	21FP4A 21FP4 ①	12C 12C	① Circuit changes necessary
B	21KP4A				
C	21LP4A				

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SPRAGUE PART No.	NOTES
C1A	≠40	450	111095	AFH2-57				FP238	TVL-3766	
B	≠40	450								
C2A	≠40	450	111094	AFH4-18		DQ19		FP476	TVL-4840	Note 1
B	10	450								Note 1
C	≠20	450								Note 1
D	≠10	450								
C3	50	50	111093	PRS150/4		BR550		TC30	TVA-1303	
C4	20	300	111089	PRS450/20		BR2035A		TC25	TVA-1808	
C5	30	300	111089	PRS450/20		BR2035A		TC25	TVA-1808	
C6	50	50	111093	PRS50/50		BR550		TC39	TVA-1308	
C7	500	12	111082	PRS12/500		BRH128A		TC1505	TVA-1132	
C8	5	50	111047	PRS150/4		BR550		TC30	TVA-1303	
C9	3-9		171212		828-10					
C10	800		171218	EF-001	MFT-1000				503C-D1	
C11	3		171225	SI3NP0			NP0K-030			
C12	.5-3		171232		829-3				CT565A	
C13	47		171228	BPD-000047	D6-470		GPIK-470	UC-5447	5GA-Q47	
C14	800		171226	EF-001	MFT-1000				503C-D1	
C15	1000		171227	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C16	1.5			SIL5NP0	TCZ-1.5		NP0K-1R5	ZT-5515	5TCCB-V15	
C17	800		171218	EF-001	MFT-1000				503C-D1	
C18	47		171230	BPD-000047	D6-470		GPIK-470	UC-5447	5GA-Q47	
C19	.5-3		171212		829-3			CT565A		
C20	10		171232	SI3NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C21	5		171231	SI5N750			N750K-050		5TCU-V5	
C22	1000		171233	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C23	8.8		171234	SI6.8NP0	TCZ-8.8		NP0K-8R8	ZT-5568	5TCCB-V88	
C24	800		171218	EF-001	MFT-1000				503C-D1	
C25	800		171218	EF-001	MFT-1000				503C-D1	
C26	5000		171235	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C27	2.2		110439	SI2.2NP0	TCZ-2.2		NP8K-2R2		5TCCB-V22	
C28A	4000		110685	BPD-2X004	D6-402 D8-402	TM5DD4	822-004	DCD-524	5HK-ED4	
B	4000				D6-402					
C29	5000		110686	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C30	5000		110686	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C31	2.2		110439	SI2.2NP0	TCZ-2.2		NP0K-2R2		5TCCB-V22	
C32A	4000		110685	BPD-2X004	D6-402 D6-402	TM5DD4	822-004	DCD-524	5HK-ED4	
B	4000									
C33	5000		110686	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	5000		110686	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C35	5000		110686	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C36A	4000		110685	BPD-2X004	D6-402 D6-402	TM5DD4	822-004	DCD-524	5HK-ED4	
B	4000				D6-402					
C37	5000		110686	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C38A	4000		110685	BPD-2X004	D6-402 D8-402	TM5DD4	822-004	DCD-524	5HK-ED4	
B	4000				D8-402					
C39	5		110598	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C40	5		110598	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C41	.1	400	110724	P488-1	DF-104	PTE4P1		PT401	47M-P1	
C42	10000		110672	BPD-01	DD-103	TM5S1	811-01	DC-511	5HK-S1	
C43	68		110459	SI68NP0	TCZ-68		NP0L-680	ZT-5468	5TCC-Q68	
C44	.1	400	110724	P488-1	DF-104	PTE4P1		PT401	47M-P1	
C45	5000		110586	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C46	2.0	50	110675		MPF2W2	PTE2P2				
C47	5		110598	SI5NP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C48	5000		110586	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	

CAPACITORS (cont)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SPRAGUE PART No.	NOTES
C49	5000		110586	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C50	33		110486	SI33	D6-330		GPIK-330	UC-5433	5GA-Q33	
C51	10000		110672	BPD-01	DD-103	TM5S1	811-01	DC-511	5HK-S1	
C52	750	500	110213	1479-00075						
C53	.0033	400	110715	P568-0033	D6-332	PTE6D33	GP2-333-332	PT6233	6TM-D33	
C54	10000		110672	BPD-01	DD-103	TM5S1	811-01	DC-511	5HK-S1	
C55	5000		110586	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C56	5000		110586	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C57	.0047	400	110716	P568-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C58	.01	600	110737	P668-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C59	.01	600	110737	P668-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C60	.047	400	110722	P488-047	DF-503	PTE4S47		PT4147	47M-S47	
C61	.047	600	110722	P488-047	DF-503	PTE4S47		PT4147	47M-S47	
C62	.047	400	110722	P488-047	DF-503	PTE4S47		PT4147	47M-S47	
C63	.1	400	110724	P488-1	DF-104	PTE4P1		PT401	47M-P1	
C64	.01	600	110737	P668-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C65A	.0022					PTE6D22		PT6222		
B	.0047		≠128200	≠PA-110	≠PC-110	PTE6D47	≠1405-01	PT6247	≠101C1	
C	.0047					PTE6D47		PT6247		
C66	.01	400	110718	P468-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C67	.22	600	110745	684-25		PTE6P25		PT6225	6TM-P25	
C68	.033	600	110740	P668-033				PT6233		
C69	.1	600	110743	P668-1	DF-104	PTE6P1		PT601	6TM-P1	
C70	.1	600	110743	P668-1	DF-104	PTE5P1		PT601	6TM-P1	
C71	.1	400	110743	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C72	.1	400	110724	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C73	.001	400	110712	P468-001	D6-102	PTE4D1	GP2L-102	PT421	4TM-D1	
C74	.001	600	110712	P668-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C75	.0047	400	110716	P468-0047	D6-472	PTE5D47	GP2-333-472	PT6247	6TM-D47	
C76	.047	400	110722	P488-047	DF-503	PTE4S47		PT4147	47M-S47	
C77	3000	500	110909	1461-004		IDR15D4		MCB463	MS-34	
C78	33	500	110250							
C79	390	500	110262	1469-0004		5R5T4		MCB243	MS-34	
C80	390	500	110262	1469-0004		5R5T4		MCB243	MS-34	
C81	470	500	110263	1469-0005		5R5T5		MCB245	MS-35	
C82	.01	600	110737	P668-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C83	.047	600	110741	P668-047	DF-503	PTE6S47		PT6147	6TM-S47	
C84	.068	400	110723	P468-068		PTE4S68				
C85	56	7000	110619						75GA-Q56	
C86	330		110454	SI330	D6-331		GP2K-331	UC-5333	5GA-T33	
C87	.001	1000	110562	P1068-001		PTE1D1		PT1621	MB-D1	
C88	.047	1000	110672	P1068-047				PT1615	TR-15	
C89	.1	400	110724	P488-1		PTE4P1		PT401	4TM-P1	
C90	.033	400	110721	P488-033				PT4133		
C91	220	500	110207	1469-00025		5R5T25				
C92	.047	400	110722	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C93	56	1500	110286						20GA-Q56	
C94	500	20000	110680	HV30C	TV3-502	MM-C20T5	413-501	HV30035	20DK-T5	
C95	.01	1000	110568	P1068-01		PTE1S1		PT1611	MB-S1	
C96	.01	1000	110568	P1068-01		PTE1S1		PT1611	MB-S1	

Note 1. C2B is 10MFD, C3C is 10MFD and C2D is not used in all Models.
♦Items C65A, C65B, C65C, R76A, R76B, R76C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	145148					Tone-Panel
B	250KΩ		Not Reg.					Volume-Rear
R2A	50KΩ	½	145146	♦QJ-429	RTV-209		UF54L } †	Horiz. Hold-Panel
B	1Meg		Not Reg.				UR16L }	Vert. Hold-Rear
R3A	1000Ω	½	145140	♦♦QJ-389	RTV-127		WF13 } ††	Contrast-Panel
B	100KΩ		Not Reg.				UR15L }	Brightness-Rear
R4A	5000Ω	½	145079	Q11-114	AG-19-S	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Reg.	Not Reg.	FKS-1/4	AK-1	Not Reg.	Attach to R4A
R5A	5Meg	½	145100		AG-25-S	AB-89	U-23	Vert Size
B	Shaft		Not Reg.		FKS-1/4	AK-1	Not Reg.	Attach to R5A
R6A	10KΩ	½	145132	Q11-116	AG-27-S	AB-14	SU-20	Horiz. Drive
B	Shaft		Not Reg.	Not Reg.	FKS-1/4	AK-1	Not Reg.	Attach to R6A
R7A	500KΩ	½	145147	Q11-133	AG-58-S	AB-59	SU-50	Noise Cancel
B	Shaft		Not Reg.	Not Reg.	FKS-1/4	AK-1	Not Reg.	Attach to R7A

♦ CONCENTRIKIT EQUIVALENT-KIT K2 BASE ELEMENTS & SHAFTS B11-123 & P1-112 (Panel)
B11-138 & R2-131 (Rear)
♦♦ CONCENTRIKIT EQUIVALENT-KIT K3 BASE ELEMENTS & SHAFTS B11-108 & P3-111 (Panel)
B11-126 & R3-131 (Rear)

† Universal replacement (Mallory exact duplicate part No. UR1005)
†† Universal replacement (Mallory exact duplicate part No. UR28W)

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R8	15KΩ	½	28172	BTS-15K	
R9	47KΩ	½	16111	BTS-47K	Note 1
R10	180KΩ	½	171236	BTS-180K	
R11	100KΩ	½	149385	BTS-100K	
R12	1500Ω	½	28180	BTS-1500	
R13	220KΩ	½	149115	BTS-220K	
R14	10KΩ	½	28170	BTS-10K	
R15	10KΩ	½	28170	BTS-10K	
R16	15KΩ	½	28172	BTS-15K	
R17	10KΩ	½	149107	BTS-10K	
R18	5600Ω	½		BTS-5600	
R19	1000Ω	½	149101	BTS-1000	
R20	68Ω	½	28144	BTS-68	
R21	470Ω	½		BTS-470	Note 1
R22	470Ω	½		BTS-470	Note 1
R23	3900Ω	½	28185	BTS-3900	
R24	68Ω	½	28144	BTS-68	
R25	470Ω	½		BTS-470	Note 1
R26	12KΩ	½	28171	BTS-12K	
R27	150Ω	½	149096	BTS-150	
R28	18KΩ	½	28173	BTS-18K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R29	180Ω	½	28149	BTS-180	
R30	470Ω	½		BTS-470	Note 1
R31	1200Ω	½	28159	BTS-1200	
R32	1500Ω	½	28160	BTS-1500	
R33	2200Ω	½	28162	BTS-2200	
R34	470KΩ	½		BTS-470K	
R35	220Ω	½	149097	BTS-220	
R36	68Ω	½	28144	BTS-68	
R37	3000Ω	1	149411	1 3/4A-2000	
R38	1Meg	1	149119	BTS-1Meg	
R39	270KΩ	½	28184	BTS-270K	
R40	100KΩ	1		BTA-100K	Note 6
R41	100KΩ	½		BTA-100K	Note 6
R42	800Ω	10	149331	1 3/4A-8000	
R43	18KΩ	½	28173	BTS-18K	
R44	22KΩ	½	149109	BTS-22K	
R45	1Meg	½	149119	BTS-1Meg	
R46	47KΩ	½	149111	BTS-47K	
R47	39KΩ	½	28176	BTS-39K	
R48	22KΩ	½	149109	BTS-22K	
R49	3.3Meg	½	149122	BTS-3.3Meg	

RESISTORS (cont)

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R50	10KΩ	½	149107	BTS-10K	
R51	150Ω	½		BTS-150	
R52	100Ω	½	149095	BTS-100	
R53	470Ω	½		BTS-470	Note 1
R54	15KΩ	½	149108	BTS-15K	
R55	4700Ω	1	149143	BTA-4700	
R56	220Ω	½	149097	BTS-220	
R57	18KΩ	½	28173	BTS-18K	
R58	47KΩ	½	149111	BTS-47K	
R59	1Meg	½	149125	BTS-10Meg	
R60	470KΩ	½	149117	BTS-470K	
R61	470KΩ	½	149117	BTS-470K	
R62	270Ω	1	149170	BTA-270	
R63	18KΩ	½	28173	BTS-18K	
R64	2.2Meg	½	149121	BTS-2.2Meg	
R65	1Meg	½	149119	BTS-1Meg	Note 2
R66	2.2Meg	½	149121	BTS-2.2Meg	
R67	33KΩ	½	149110	BTS-33K	
R68	82KΩ	½	28180	BTS-82K	
R69	150KΩ	½	149114	BTS-150K	
R70	47KΩ	½	149111	BTS-47K	
R71	2200Ω	½	28162	BTS-2200	
R72	2.2Meg	½	149121	BTS-2.2Meg	
R73	1000Ω	½	28158	BTS-1000	
R74	2200Ω	½	28162	BTS-2200	
R75	100KΩ	½	149113	BTS-100K	
R76A	22KΩ			BTS-22K	
B	82000Ω	½	≠128200	BTS-8200	
C	8200Ω			BTS-8200	
R77	820KΩ	½	28190	BTS-820K	
R78	15KΩ	½		BTA-15K	Note 3
R79	1.8Meg	½	28194	BTS-1.8Meg	
R80	180KΩ	½	28182	BTS-180K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R81	4700Ω	½	28186	BTS-4700	
R82	2.2Meg	½	149121	BTS-2.2Meg	
R83	470Ω	1	149106	BTS-470	
R84	2200Ω	2	149078	BTB-2200	
R85	2200Ω	2	149078	BTB-2200	
R86	270KΩ	½	28184	BTS-270K	
R87	270KΩ	½	28184	BTS-270K	
R88	560Ω	½	28155	BTS-560	
R89	560Ω	½	28155	BTS-560	
R90	10MΩ	½	149101	BTS-1000	
R91	100KΩ	½	149385	BTS-100K	
R92	100KΩ	½	149385	BTS-100K	
R93	470KΩ	½	149117	BTS-470K	
R94	680KΩ	½	149118	BTS-680K	
R95	2200Ω	½	28162	BTS-2200	
R96	4.7Meg	½	149123	BTS-4.7Meg	
R97	1500Ω	½	149387	BTS-1500	
R98	5600Ω	1	149184	BTA-5600	
R99	180KΩ	½	28182	BTS-180K	
R100	82KΩ	½	28180	BTS-82K	
R101	5600Ω	½	28187	BTS-5600	
R102	68Ω	½	28144	BTS-68	
R103	120Ω	2		BTB-120	Note 4
R104	15KΩ	5	33912	1 3/4A-15000	
R105	100Ω	2	149096	BTS-100	
R106	1500Ω	½		BTS-1500	Note 5
R107	27Ω	1	149160	BTA-27	
R108	3.3Ω	1	149419		
R109	2250Ω	5	149420	1 3/4A-1250	
R110	30000Ω	20	149425		
R111	75Ω	10	149438	1 3/4A-75	
R112	100KΩ	½	149385	BTS-100K	

Note 1. Some Models may use a 220Ω resistor in this application.
Note 2. Some Models may use a 1Meg resistor in this application.
Note 3. Some Models may use a 10KΩ resistor in this application.
Note 4. Some Models may use a 100Ω resistor in this application.
Note 5. Some Models may use a 1800Ω resistor in this application.
Note 6. Some Models may use a single 4700Ω, 2 watt resistor in this application.
♦ Items C65A, C65B, C65C, R76A, R76B, R76C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	REPLACEMENT DATA: RCA TYPE No.
T1	117VAC ②2.24A	630VCT .290ADC	5VAC ④ 6A	6.3VAC ④ 6A SEC. 4 6.3VAC ⑨9.6A	161443	P-8166 ①		TP-319	R-50BC ②	

① Parallel the 6.3V 5A windings and use as Sec. 4.
② Parallel the 5V and 6.3V windings and use as Sec. 2.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	REPLACEMENT DATA: RCA TYPE No.	NOTES
T2	190Ω	1000Ω	161254	A-8125	A-3063	TSO-5	A-97X		Vert.Osc.Trans.
T3	6320tap ②22Ω	26.2Ωtap ②2.7Ω, 8.4Ω 22.4Ω	161062		HVO-9③④	TFB-13	D-23④ ②		
		SEC. 2 0Ω							
T4	1712Ω tap ④ 1212Ω	2.2Ω	161255	A-8123	A-3037	TSO-8 ⑤	A-102X		Vert.Output Trans.
T5A	22Ω		114741	DY-8A ⑥	MDF-72	TT-6 ⑤	Y-22 ⑥		Horiz. Deflection Coils
B	23Ω								Vert. Deflection Coils
T6	5.42tap ②1.5Ω		114084		MWC-5	TL-3			Horiz. Linearity Coil
T7	2.2Ω		114083		MWC-2⑦	TW-5	WC-12 ⑧		

① Drill new mounting holes.
② See instruction sheet packed with unit for terminal connections except, connect yoke terminals #5 and #3.
③ Connect as in original circuit except, connect original terminal #4 to new terminal "T".
④ Connect as auto transformer
⑤ Use original horizontal deflection coil network if necessary.
⑥ Use original deflection coil network.
⑦ Enlarge mounting hole.
⑧ Connect to coded blue and green terminals.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	NOTES
T8	6.2Ω	2.5Ω	565Ω	.38Ω	161259 161256②	A-3823①	A-3020①	RO-13	S-7X	

① Drill one new mounting hole.
② Output transformer used in models 521CM, and 521CDM

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: Stromberg-Carlson PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1	5 1/4	PM	2.9Ω	155207 155187① 155284②	ST-803 Mod. P-525V	52A1	① Alternate PM speaker. ② Speaker used on models 521CM, 521CO, 521CDM, and 521CSD

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: Stromberg-Carlson PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Coke	0ΩCT	0Ω					
L2	Fil. Choke	0Ω		171220				
L3	Neutr. Coil	0Ω		171224				
L4	RF, Mixer grid & Osc. coils	0Ω						
L5	Fil. Choke	0Ω		171237				
L6	RF Choke	0Ω		171223				
L7	Conv. Plate	.5Ω		171221				
L8	1st Video IF	.1Ω	.5Ω	114119				
L9	2nd Video IF	.8Ω	.8Ω	114397				Includes trap
L10	3rd Video IF	.8Ω	.8Ω	114397				Includes trap
L11	4th Video IF	.7Ω	.7Ω	114406				Includes trap
L12	5th Video IF	.7Ω	.7Ω	114407				
L13	Series Peak. coil	5Ω		114637	19-3075 *	TV-181*	6172*	78 Microhenries; wound on 5.6KΩ Resistor
L14	Shunt Peak. coil	6.5Ω		114745	19-3075	TV-181	6172	74 Microhenries;
L15	Shunt Peak. coil	7.5Ω		114657	19-3125		4642	124 Microhenries
L16	4.5MC Trap	1.8Ω		114415	20-1004	TV-151	1470	
L17	Series Peak. coil	10Ω		114640	19-3180	TV-184	6180 1470-A	190 Microhenries
L18	1st Sound IF	2.8Ω		114400				
L19	2nd Sound IF	1.9Ω	2.1Ω	114401	16-3445 †	TV-113	6203	
L20	Ratio Det.	6Ω	1.7ΩCT	114375	17-3497	TV-115	6205	Tertiary Winding= .5Ω
L21	Horiz. Osc.	110Ω		114069	19-1576	TV-163	6210	
L22	RF Choke	1.8Ω		114693			4606	2.2 Microhenries; IRC Part # CLA

* Parallel with 5.6KΩ Resistor
† Drill mounting-holes & cut out 7/8 square chassis hole.

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA: Stromberg-Carlson PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L23	.290A	60Ω	2.5HY	161030	C-2326 ①	C-2996	TA-3300 ①	C-17X

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: Stromberg-Carlson PART No. FUSE	Stromberg-Carlson PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG P/T)	1/4A 250V	128000		318.250 (3AG-1/4A-P/T)		GJV-1/4	
M2	3AG-slo-blo	5A 125V	128007	128008	313005 (3AG-5A - slo-blo)	342001	MDX-5	HKP

MISCELLANEOUS

ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M3	Tuner	164020	Standard coil-VHF
M4	Crystal	162157	1N64-Video detector
M5	Switch	158037	TV-phono-D. P. S. T.
M6	Centering magnet	114117	
M7	Ion trap magnet	114645	
B1	Trimmer cap	110043	Horiz. freq. control (70-470 MMF)
	Cabinet	108278	Model 521TM
	Cabinet	108291	Model 521TO
	Cabinet	108279	Model 521CM
	Cabinet	108280	Model 521CDM
	Cabinet	108283	Model 521C5D
	Knob	134183	Inner, model 521TM, 521CM, 521CDM, (521C5D brown) 3used
	Knob	134184	Outer, Model 521TM, 521CM, 521CDM, (521C5D brown) 3 used
	Knob	134194	Inner model 521TO, 521CO, (521C5D yellow) 3 used
	Knob	134192	Outer model 521TO, 521COm (521C5D yellow) 3 used
	Knob	134181	Chan. select model 521TM, 521CM, 521CDM, (521C5D, brown)
	Knob	134182	Fine tuning model 521TM, 521CM, 521CDM, (521C5D, brown)
	Knob	134188	Chan. select model 521TO, 521CO, (521C5D yellow)
	Knob	134190	Fine tuning model 521TO, 521CO, (521C5D yellow)
	Knob	134193	Inner model model 521C5D black
	Knob	134191	Outer model 521C5D black
	Knob	134187	Chan. select model 521C5D black
	Knob	134189	Fine tuning model 521C5D black
	Channel escutcheon	142197	Brown
	Channel escutcheon	142199	Yellow
	Channel escutcheon	142198	Black
	Back Cover	101211	
	Mask	121072	Model 521TM, 521CM, 521CDM
	Mask	121074	Model 521TO, 521CO
	Mask	121073	Model 521C5D
	Safety glass	138037	
	Door set	81837	Model 521CDM

TROUBLE SHOOTING AIDS (cont)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

POWER

DEAD SET

If filaments fail to light, check fuse M2, switch on volume control, AC interlock assembly and T1. If filaments light, check V22, V23 and other components associated with the B+ network.

SMALL AND/OR DIM PICTURE

Check by substitution V22 and V23. Check B+ filter and decoupling network.

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check fuse M1. Check by substitution V21, V20, V19 and V18. Check waveform W18.

If Satisfactory	If Unsatisfactory
Check C94, R108, T3, T5A and other associated circuit components.	Check C79, C80, C81, C82, R100, R99, R6, R7 and other components.

INSUFFICIENT HIGH VOLTAGE

Check by substituion V18. V19, V20, V21, V22 and V23. Check picture tube. Proceed as outlined under "Loss of High Voltage".

BLOOMING

Check by substitution V21, V20, V19, V18, V22 and V23. Check C94, R108, T3, T5A, picture tube and other associated components.

GENERAL

RASTER SOUND NO PIX

See "Loss of Video ".

RASTER NO SOUND NO PIX

Check by substitution V1, V2, V3, V4, V5 and V6. Check associated circuit components.

NO RASTER NO SOUND

See "Dead Set".

INTERMITTENT STREAKS

Check video signal for interference pulses. Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this receiving equipment.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the RF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs, also, remove 2 wood screws and channel escutcheon. Small hole is behing escutcheon. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the channel selector shaft.

PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass remove 2 metal screws holding metal brace at top of the cabinet. Remove brace and safety glass. (Use extreme caution when removing safety glass).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SPECIAL ADJUSTMENTS - NOISE CANCELLATION CONTROL ADJUSTMENT

All necessary horizontal sweep circuit adjustments should be made before adjustment of noise cancellation control. Tune to strongest available TV signal. Starting with control in extreme counter clockwise position, turn control clockwise until picture starts to distort or lose sync, then back off the control until picture is stable and undistorted.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the horizontal hold control at the center of its range and adjust the horizontal frequency trimmer (B1) until the picture synchronizes horizontally. (for location see tube placement chart). If satisfactory results cannot be obtained by the above adjustment Horizontal Sweep Circuit adjustment on page 11.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector Buzz, adjust the ratio detector secondary (L20) located on top of chassis. (See tube placement chart).

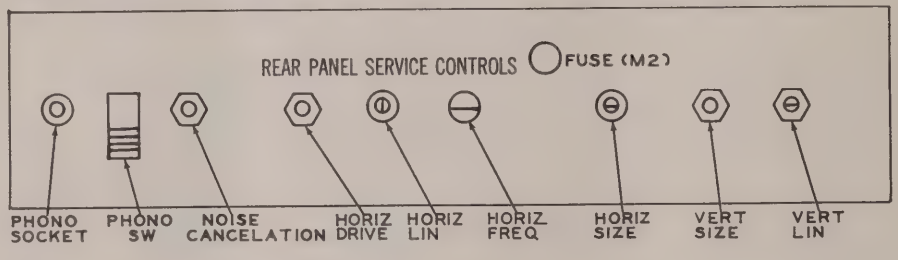
FUSES

Two fuses are used. One for horizontal sweep circuit protection and one for LV power supply protection. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

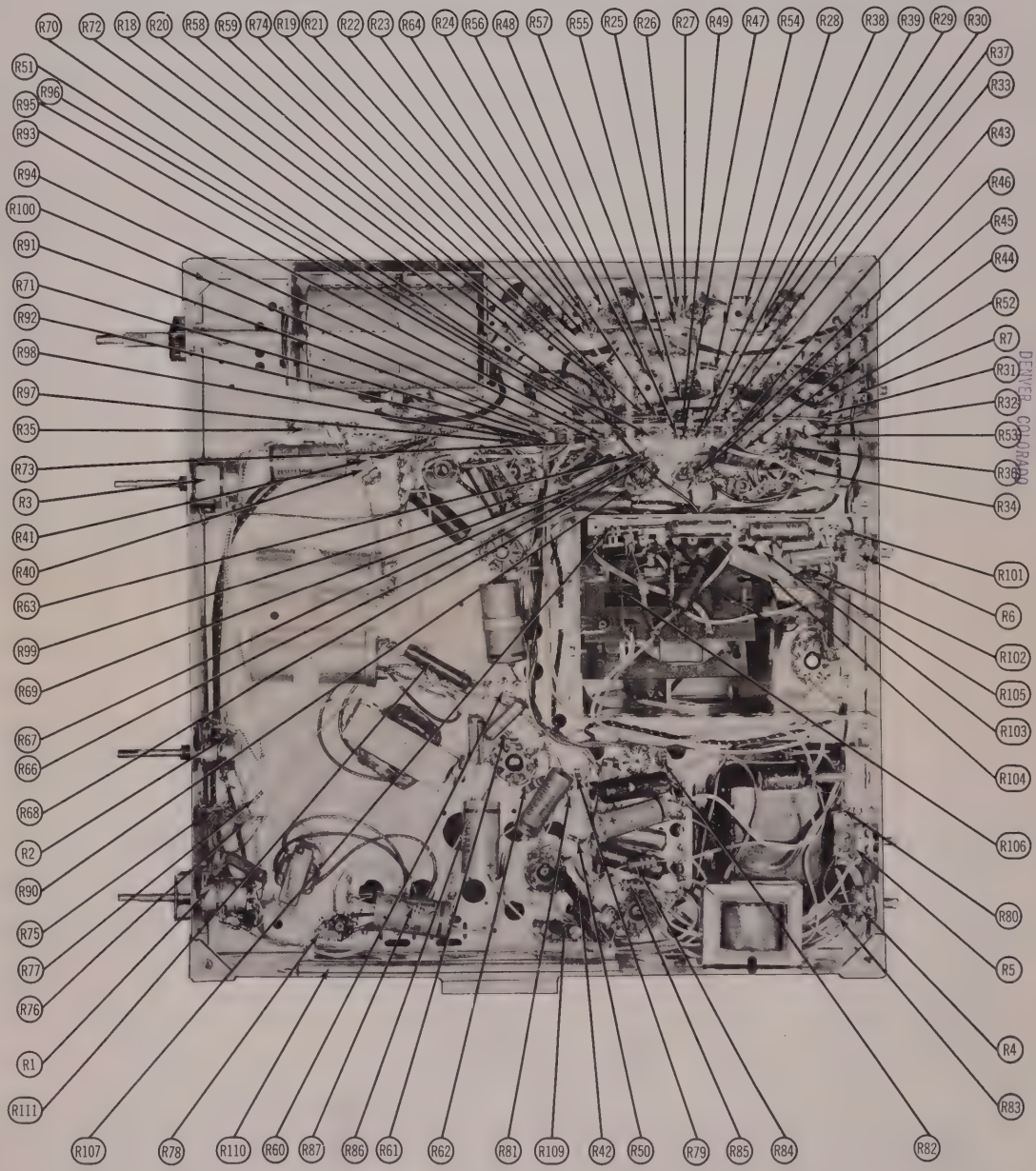
SERVICE ADJUSTMENT LOCATION



DISASSEMBLY INSTRUCTIONS

1. Remove 7 push on type and 1 set screw type (channel selector) control knobs.
2. Disconnect built-in antenna and transmission line from rear cover.
3. Remove 8 wood screws and 1 metal screw. Remove rear cover.
4. Remove 5 chassis bolts. Remove chassis.

NOTE: Speaker is fastened to chassis.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

TRAVLER
MODEL 5301

TRAVLER
MODEL 5301

TRADE NAME	Travler Model 5301
MANUFACTURER	Travler Radio & Tel. Corp., 571 W. Jackson Blvd., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY	110-120 Volts AC-DC (or) 3 Volts "A" Supply & 67½ Volts "B" Supply
RATING	.12 Amp. @ 117 Volts AC (or) 150MA @ 3 Volts DC & 10MA @ 67½ Volts DC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Use isolation transformer, if available. If not, connect a. .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna stator plates of tuning gang. Low side to B-.	455KC (400∿Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	"	"	1650KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop fo receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

TRAVLER MODEL 5301

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRAVLER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det-AVC-AF Amp.	1U5	1U5	6BW	
V4	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	TRAVLER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	40	150	EC-14	PRS150/40-40-40		BBRT44215		3N532	R1110	Red Yellow Blue
B	40	150								
C	20	150								
C2	70	10	EC-8	SRE12/100					TVA-1130	
C3	.05	400	PC-2	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C4	100	500	MC-2	1469-0001	D6-101	5W5T1		MC235	MS-31	
C5	.01	400	PC-7	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C6	.1	200	PC-8	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C7	.1	400	PC-3	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C8A	150		*MC-7	S1150	D6-151	TM5T15	GP2K-151	UC-5315	*34C4	
B	2000			BPD-002	DD-202	TM5D2	801-002	DC-522		
C	5000			BPD-005	MD-502	TM5D5	811-005	DC-525		
D	100			S1100	D6-101	TM5T1	GP1K-101	UC-531		
E	5000			BPD-005	MD-502	TM5D5	811-005	DC-525		
C9	.005	600	PC-6	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C10	.05	400	PC-5	489ZX-05		PJ4S5		PT415	4TM-S5	
C11	.1	400	PC-8	P488-1		PJ4P1		PT401	4TM-P1	

* Items C8A, C8B, C8C, C8D and C8E are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	TRAVLER PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg	½	VC-11	Q13-137	AG-63-Z	BSK-70	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A

RESISTORS

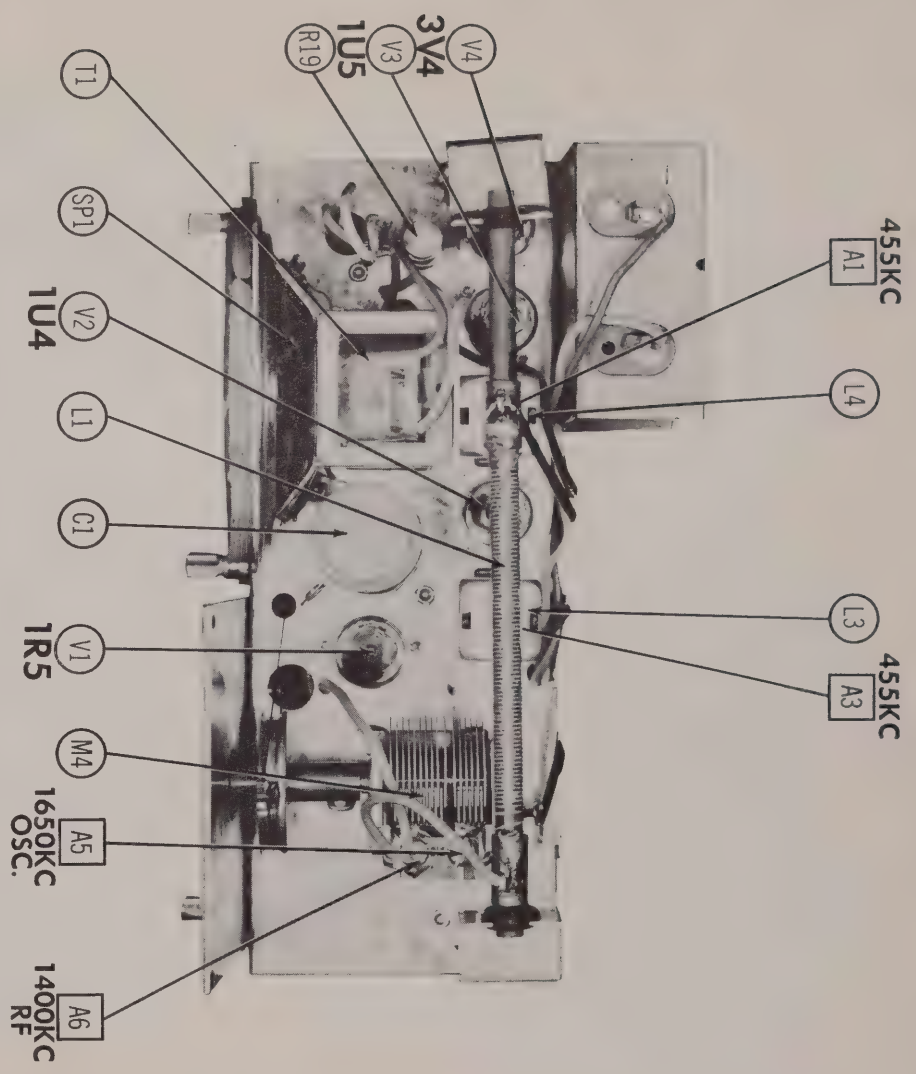
ITEM No.	RATING: OHMS	RATING: WATT	TRAVLER PART No.	IRC PART No.	NOTES
R2	220KΩ	½	1R-2	BTS-220K	
R3	3.3Meg	½	1R-23	BTS-3.3Meg	
R4	10KΩ	½	1R-37	BTS-10K	
R5	10Meg	½	1R-3	BTS-10Meg	
R6	82KΩ	½	1R-31	BTS-82K	
R7	10Meg	½	1R-3	BTS-10Meg	
R8	3.3Meg	½	1R-23	BTS-3.3Meg	
R9	1Meg	½	1R-12	BTS-1Meg	
R10	2.2Meg	½	1R-13	BTS-2.2Meg	
R11	270Ω	½	1R-33	BTS-270	

ITEM No.	RATING: OHMS	RATING: WATT	TRAVLER PART No.	IRC PART No.	NOTES
R12	470Ω	½	1R-1	BTS-470	
R13	33Ω	½	1R-17	BTS-33	
R14	270Ω	½	1R-33	BTS-270	
R15	620Ω	½	1R-39		
R16	33Ω	½	1R-17		
R17	47Ω	1	1R-41		
R18	3900Ω	1	1R-40	BTA-3900	
R19A	1050Ω	5	WR-7		
B	1050Ω				
R20	220KΩ	½	1R-20	BTS-220K	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	TRAVLER PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	10KΩ	3.1Ω	380Ω	.42Ω	Part of Speaker	A-3329①	A2932		S-11X①	① Bend mounting tabs down, file out slots, mount on original mounting bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	TRAVLER PART No.	VIKING PART No.	QUAM PART No.	
SP1	3½"	PM	3.1Ω	SPK-16	35J4	3A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRAVLER PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	2Ω		LL-29 *				Used with tuning cap. (Part #GC-12)
L2	Osc. Coil	1.2Ω	10Ω	L0-17 †			70-0SC ▲	Used with tuning cap. (Part #GC-12)
L3	Imput IF	25Ω	25Ω	L1-5	16-6758	BC-352	12-C1	
L4	Output IF	25Ω	25Ω	L1-5	16-6758	BC-353	12-C2	

* Some models use Part #LL-31 in this application when tuning capacitor (Part #GC-14) is used.
† Some models use (Part #L0-19) in this application when tuning capacitor (Part # GC-14) is used.)
▲ Disregard tap on secondary winding.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT	TRAVLER PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.
M1	.064ADC	SR-2	NB5	5M4	1003	6S75	75

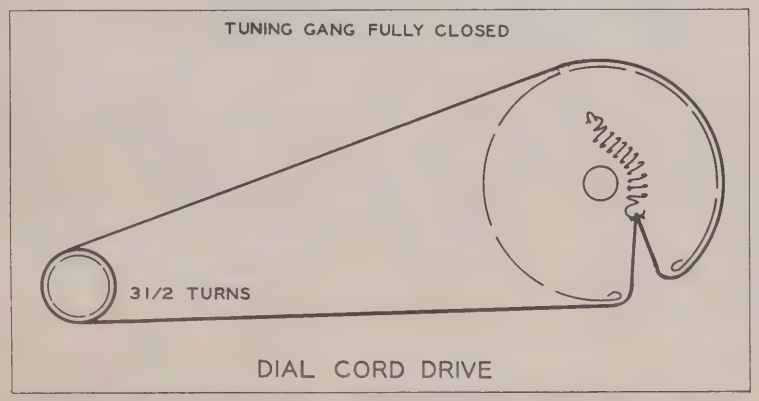
BATTERIES

ITEM No.	VOLTAGE	TRAVLER PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	1½ V		950			2R			2 used in series
M3	67½ V			467 *477			XX45 *P45		

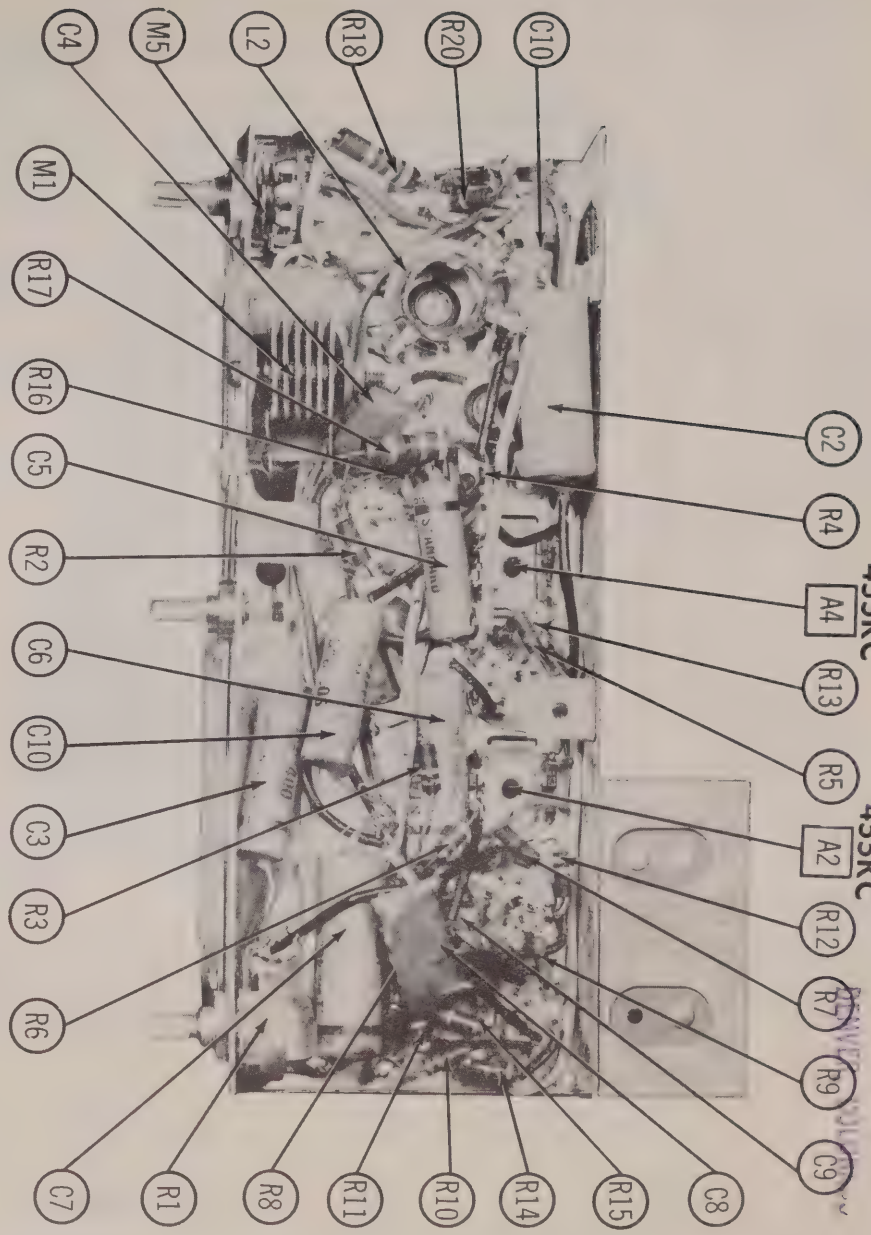
* Long life series

MISCELLANEOUS

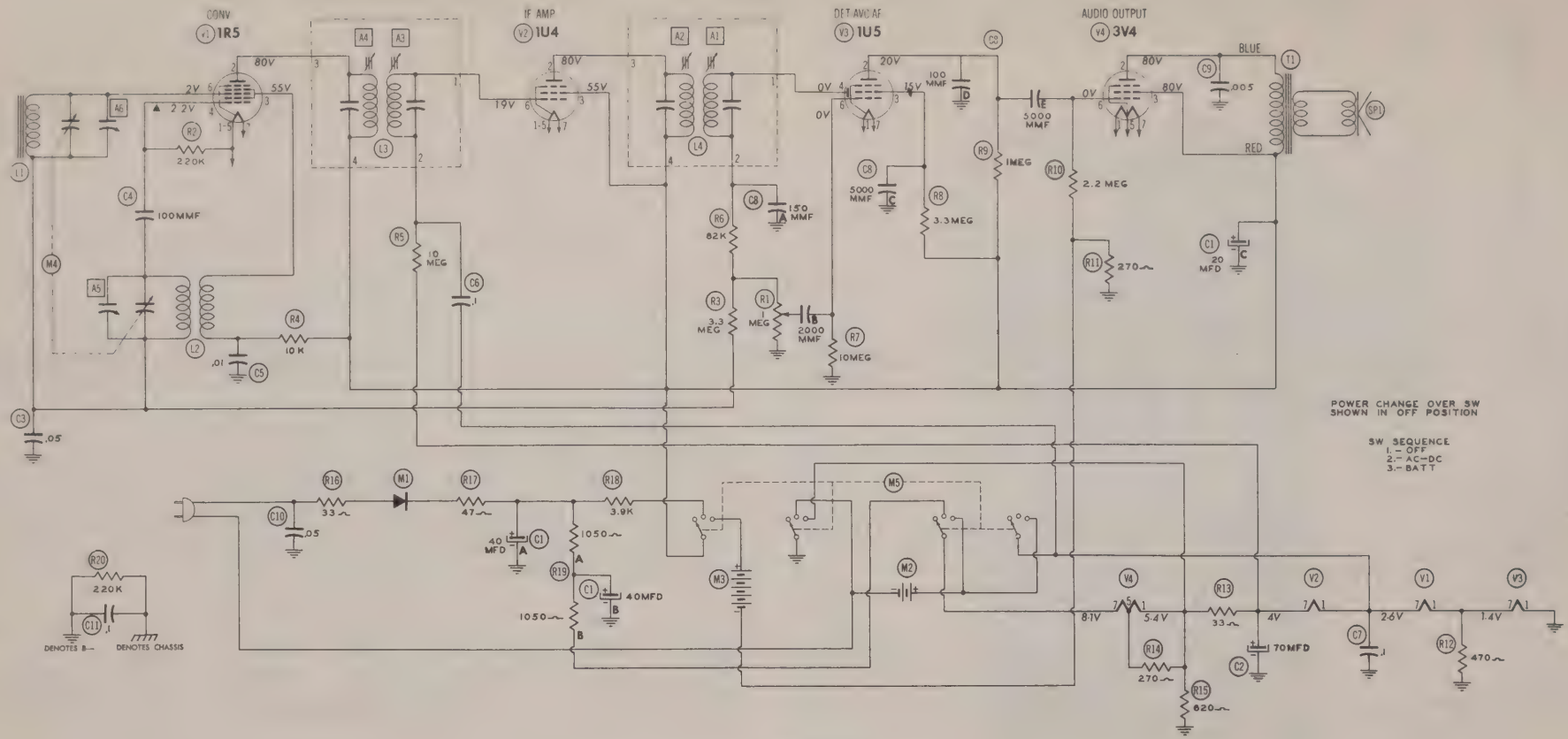
ITEM No.	PART NAME	TRAVLER PART No.	NOTES
M4	Tuning Cap.	GC-12 or GC-14	13-240MMF, 13-110MMF
M5	Switch	SW-8	Off/on power selector



CHASSIS—BOTTOM VIEW



PROPERTY OF L. F. EQUIPMENT 3301 EAST 46th ST DENVER, COLORADO
PROPERTY OF L. F. EQUIPMENT 3301 EAST 46th ST DENVER, COLORADO



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	■3.9KΩ	■13.9KΩ	220KΩ	*	4.3Meg	*
V 2	1U4	*	■3.9KΩ	■13.9KΩ	33Ω	*	10Meg	*
V 3	1U5	*	■1Meg	■3.3Meg	1.1Meg	INF	10Meg	*
V 4	3V4	*	■4.3KΩ	■3.9KΩ	INF	*	2.2Meg	*

▲ TAKEN WITH VACUUM TUBE VOLTMETER
■ MEASURED FROM OUTPUT OF M1
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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224-15

1- DC voltage measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt.
2- Socket connections are shown as bottom views.
3- Measured values are from socket pin to common negative.
4- Line voltage maintained at 117 volts for voltage readings.
5- Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6- Volume control at maximum, no signal applied for voltage measurements.

DENVER, COLORADO

TRUETONE
MODELS D3351, D3352, D3353

TRUETONE
MODELS D3351, D3352, D3353

TRADE NAME	Truetone Models D3351, D3352, D3353 (Codes S-WE-9171B, C, D)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3S4 Audio Output
POWER SUPPLY	105-125 Volts AC-DC (or) 3 Volts "A" Supply & 67½ Volts "B" Supply
RATINGS	.12 Amp. @ 117 Volts AC (or) 150MA @ 3 volts DC & 67½ Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna stator lug of tuning gang. Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.	Reassemble chassis in cabinet and place batteries in proper place before aligning oscillator and antenna trimmers. The back of the cabinet must be open to gain access to these trimmers. With tuning gang fully closed the dot under the small "5" of the "55" of the dial scale should be placed directly opposite the gold pointer mark on the cabinet.						
3.		Loop	1600KC	1600KC	Across voice coil	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	1500KC	Tune to 1500KC signal	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TRUETONE
MODEL D3351

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det-AVC-AF Amp.	1U5	1U5	6BW	
V4	Audio Output	3S4	3S4	7BA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTE
C1A	40	150	521193	AFH2-14					R1440	
B	40	150		PRS25/250						
C	250	15								
C2	.05	200	512214	P288-05	DF-503	PTE4S5		PT415	4TM-S5	
C3	470		513008	SI470	D6-471		GP1K-471	UC-5347	5GA-T47	
C4	47		513002	SI47	D6-470		GP1K-470	UC-5447	5GA-Q47	
C5	.1	400	512217	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C6	10000		513022	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C7	10000		513022	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C8A	150					TM5T15	GP2K-151	UC-5315	5GA-T15	
B	2000					TM5D2	811-002	DC-522	5HK-D2	
C	10000		*521305	*PA-136	*PC165	TM5S1	811-01	DC-511	5HK-S1	
D	150					TM5T15	GP2K-151	UC-5315	5GA-T15	
E	5000	-				TM5D5	811-005	DC-525	5HK-D5	
C9	1500		513010	SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5GA-D15	
C10	.05	400	512214	P488-05		PTE4S5		PT415	4TM-S5	
C11	.05	400	512214	P488-05		PTE4S5		PT415	4TM-S5	

* Items C8A, C8B, C8C, C8D, C8E, R8A, R8B, R8C and R8D are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	521218	Q13-137	AG-63-Z	AB-70	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWB-2	KB-2	US-27	Attach to R1A

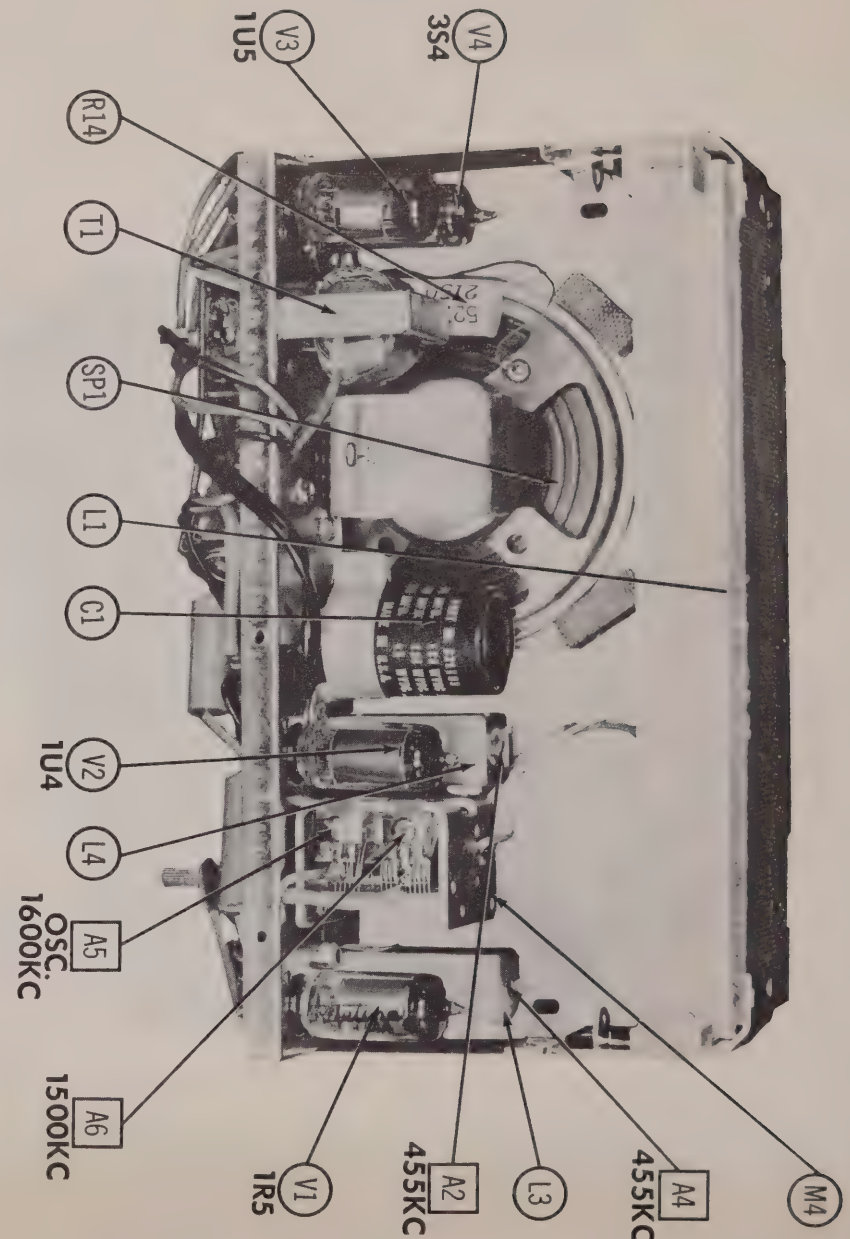
RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R2	4.7Meg	½	510195	BTS-4.7Meg	
R3	390Ω	½	510129	BTS-390	
R4	100KΩ	½	510173	BTS-100K	
R5	22KΩ	½	510161	BTS-22K	
R6	10Meg	½	510197	BTS-10Meg	
R7	3.3Meg	½	510194	BTS-3.3Meg	
R8A	10Meg	½		BTS-10 Meg	
B	4.7Meg	½	521305 ♦	BTS-4.7Meg	
C	1Meg	½		BTS-1Meg	
D	3.3Meg	½		BTS-3.3Meg	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	NOTES
R9	270Ω	½	510126	BTS-270	
R10	680Ω	½	510133	BTS-680	
R11	27Ω	½	510108	BTS-27	
R12	220KΩ	½	510179	BTS-220K	
R13	680Ω	½	510133	BTS-680	
R14A	2000Ω 5%	7	521210♦♦		
B	150Ω	3			
R15	3.3KΩ	½	510146	BTS-3.3K	

♦ Items R8A, R8B, R8C, R8D, C8A, C8B, C8C, C8D, C8E are combined in one unit.
♦♦ Items R14A and R14B are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	7KΩ	3Ω	510Ω	.4Ω	521266	A-2927 ①	A-3329		S-8X ①	① Bend mounting tabs down, file out slots, mount on original mounting bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3Ω	521365	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.6Ω		521375				Includes Mounting board
L2	Osc. Coil	2.2Ω	10Ω	521224	14-1074		71-Osc.	
L3	Input IF	25Ω	25Ω	521318	16-6758	BC-352	12-C1	
L4	Output IF	42Ω	42Ω	521319	16-6758	BC-353	12-C2	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT	TRUETONE PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.
M1	.064ADC	508305	NB5	5M4	1003	6S75	75

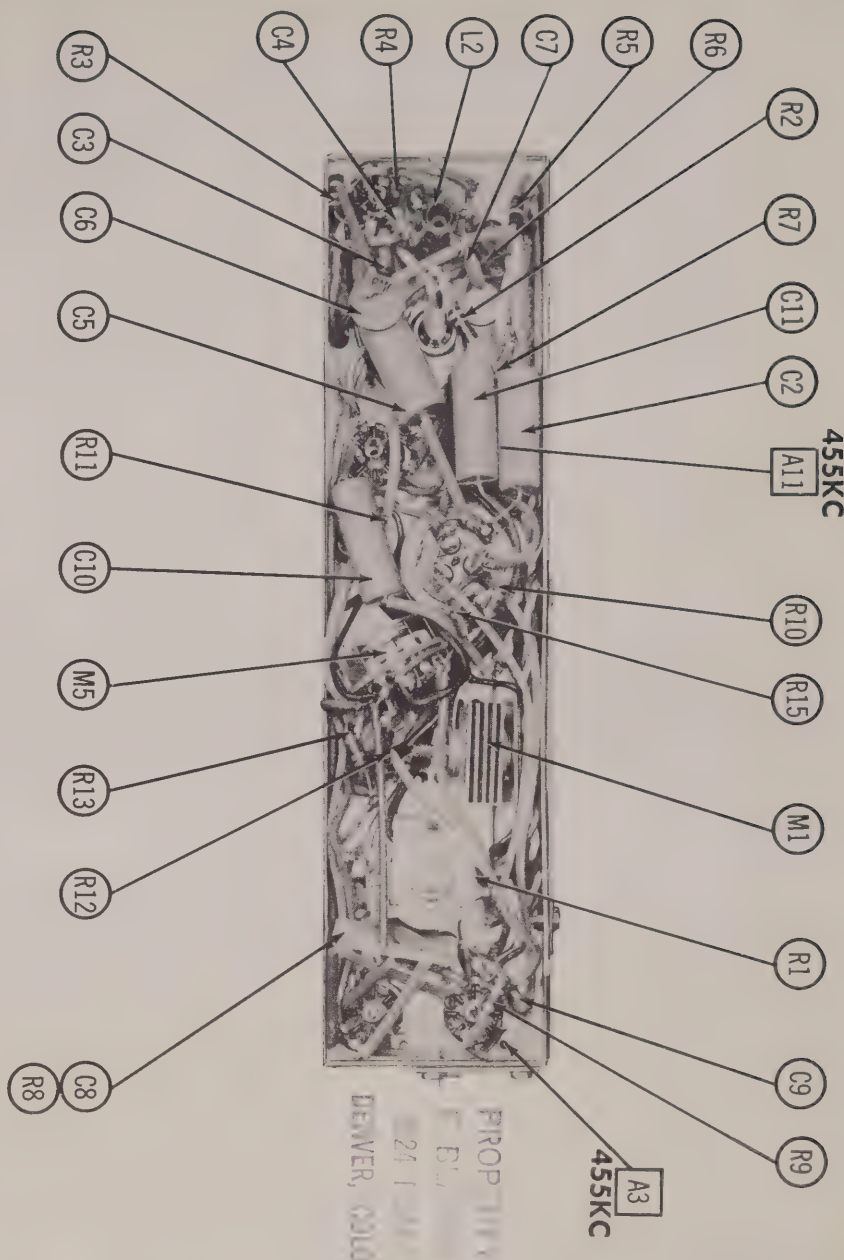
BATTERIES

ITEM No.	VOLTAGE	TRUETONE PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	1½ V	3B6112	964			2IR			2 Used in Series
M3	67½ V	3B6256		477			P45		

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Tuning Cap.	521294	14-295MMF, 8-97MMF
M5	Switch	521293	Power Selector
	Cabinet	521673	Back section -Model D3351-Maroon
	Cabinet	521677	Back section -Model D3352-Gray
	Cabinet	521675	Back section -Model D3353-Green
	Cabinet	521678	Front section -Model D3351-Maroon (includes latch & baffle)
	Cabinet	521676	Front section -Model D3352-Gray (includes latch & baffle)
	Cabinet	521674	Front section -Model D3353-Green (includes latch & baffle)
	Handle	521417	Plastic
	Knob	521415	Power & volume (gray)
	Knob	521416	Tuning & dial scale (gray)
	Latch button	521257	
	Contact	521238	"A" Battery - leaf type
	Contact	521239	"A" Battery - Spring type
	Holder	521236	"A" Battery - For leaf contact
	Holder	521237	"A" Battery - For spring contact

CHASSIS—BOTTOM VIEW



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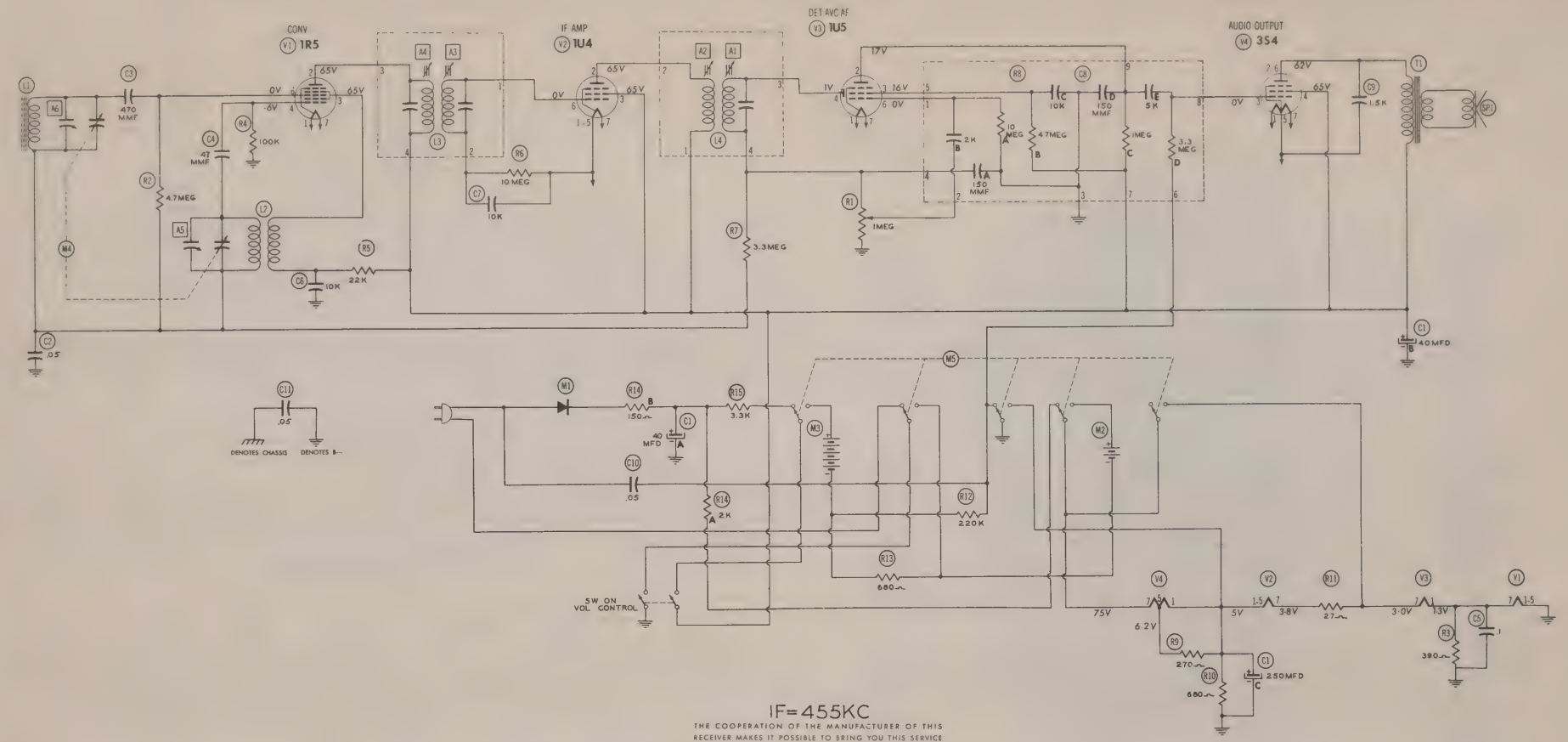
TRUETONE MODEL D3351



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	0Ω	†3.5KΩ	†3.5KΩ	100KΩ	*	4.7Meg	*
V 2	1U4	*	†3.5KΩ	†3.5KΩ	220KΩ	*	10Meg	*
V 3	1U5	*	†1Meg	†4.7Meg	1Meg	INF	10Meg	*
V 4	3S4	*	*	3.3Meg	†3.5KΩ	*	†4KΩ	*

▲ TAKEN WITH VACUUM TUBE VOLTMETER
† MEASURED FROM OUTPUT OF M1
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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224-16

1- DC voltage measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt.
2- Socket connections are shown as bottom views.
3- Measured values are from socket pin to common negative.
4- Line voltage maintained at 117 volts for voltage readings.
5- Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6- Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

TRUETONE MODELS
2D1316A, 2D1326A, 2D2313A, 2D2315A

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MODEL 2D2315A

TRUETONE MODELS
2D1316A, 2D1326A, 2D2313A, 2D2315A

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TRUETONE MODELS 2D1316A, 2D1326A, 2D2313A, 2D2315A

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TRUETONE MODELS 2D1316A, 2D1326A, 2D2313A, 2D2315A

TRUETONE MODEL 2D2315A

TRADE NAME	Truetone Models 2D1316A, 2D1326A, 2D2313A, 2D2315A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Twenty
POWER SUPPLY	105-115 Volts AC-60 Cycle RATING 1.56 Amp. @ 115 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83UHF, Video IF 26.75MC, Sound IF 22.25MC (Intercarrier)

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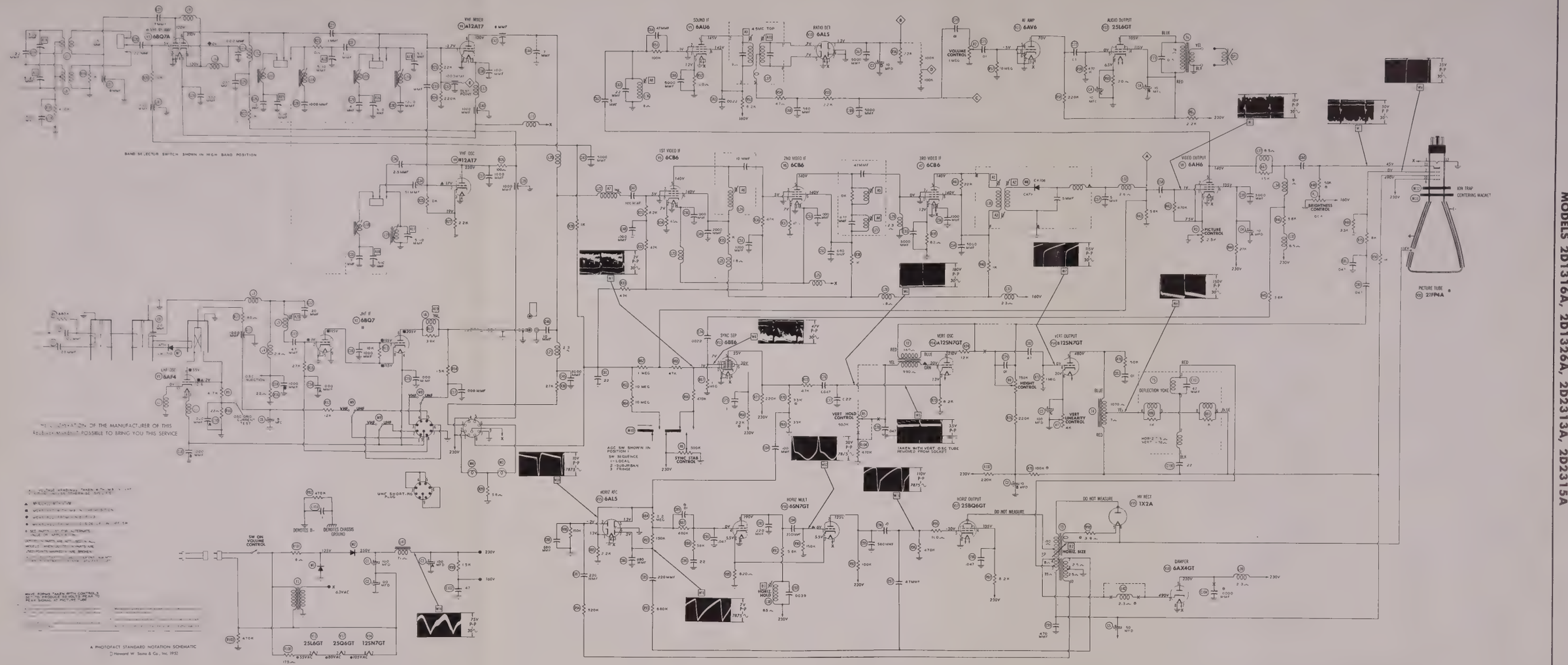
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MODELS 2D1316A, 2D1326A, 2D2313A, 2D2315A
TRUETONE MODELS
2D1316A, 2D1326A, 2D2313A, 2D2315A
PICTURE TUBE
21FP4A
ION TRAP CENTERING MAGNET
DEFLECTION YOKE
BRIGHTNESS CONTROL
PICTURE CONTROL
HEIGHT CONTROL
VERT LINEARITY CONTROL
VERT HOLD CONTROL
SYNC STAB CONTROL
VOLUME CONTROL
HORIZ SIZE
HORIZ HOLD
DAMPER
HV RECT
DO NOT MEASURE
SW ON VOLUME CONTROL
DENOTES B-
DENOTES CHASSIS GROUND
BAND SELECTOR SWITCH SHOWN IN HIGH BAND POSITION
AGC SW SHOWN IN POSITION 1
SW SEQUENCE
1 - LOCAL
2 - SUBURBAN
3 - FRINGE
TAKEN WITH VERT OSC TUBE REMOVED FROM SOCKET
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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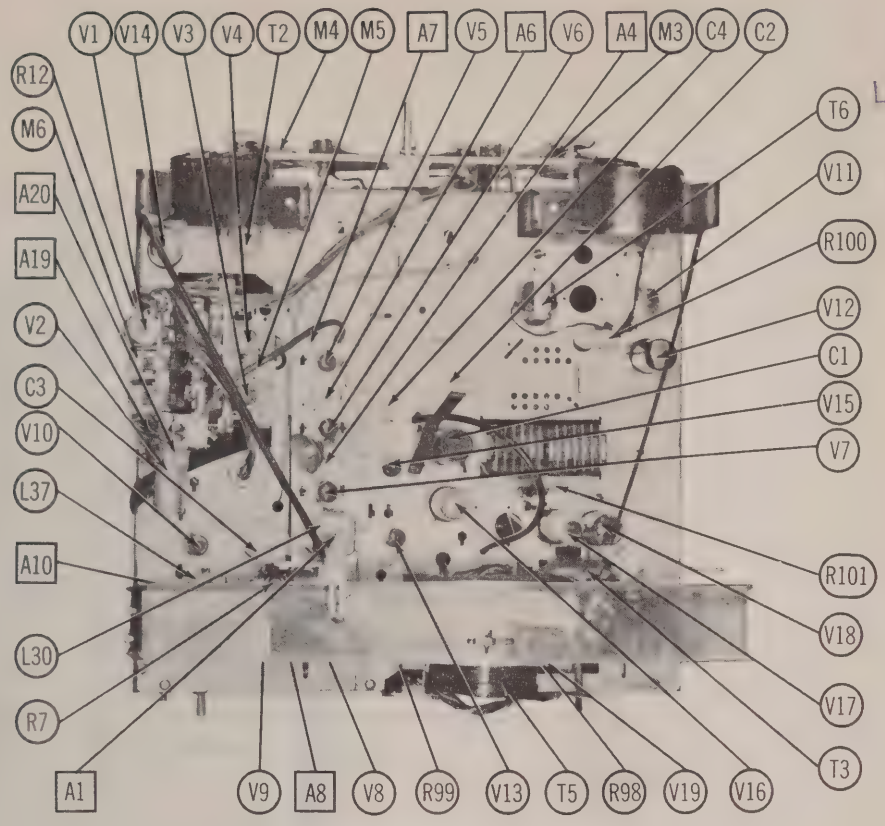
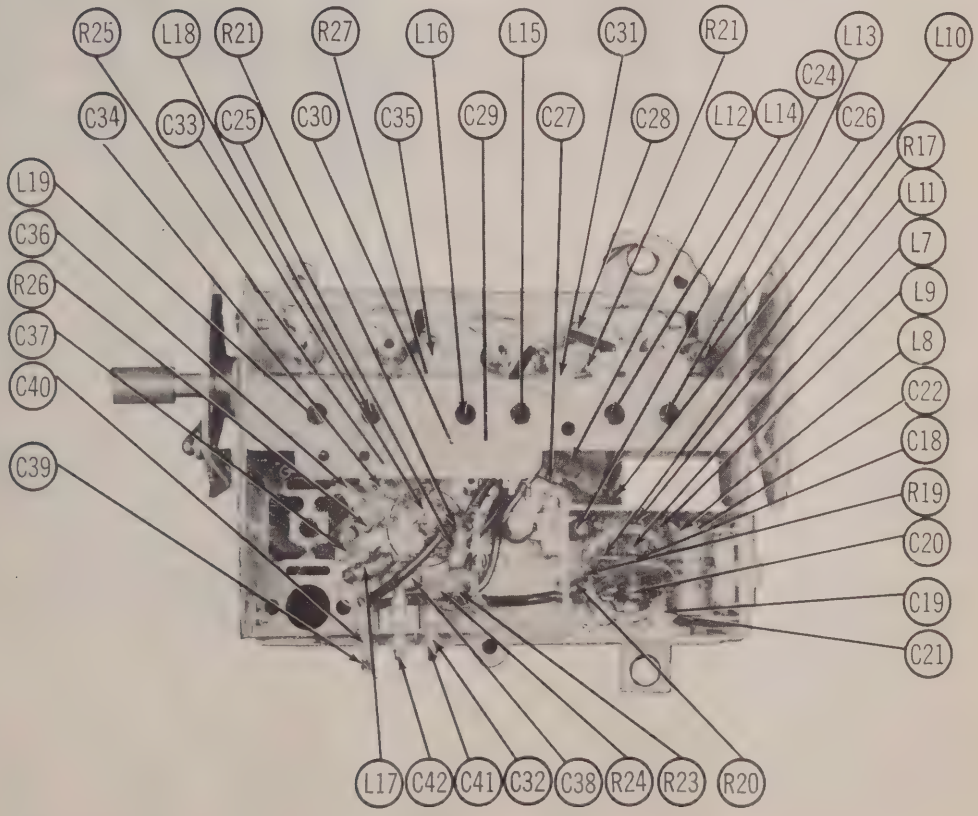
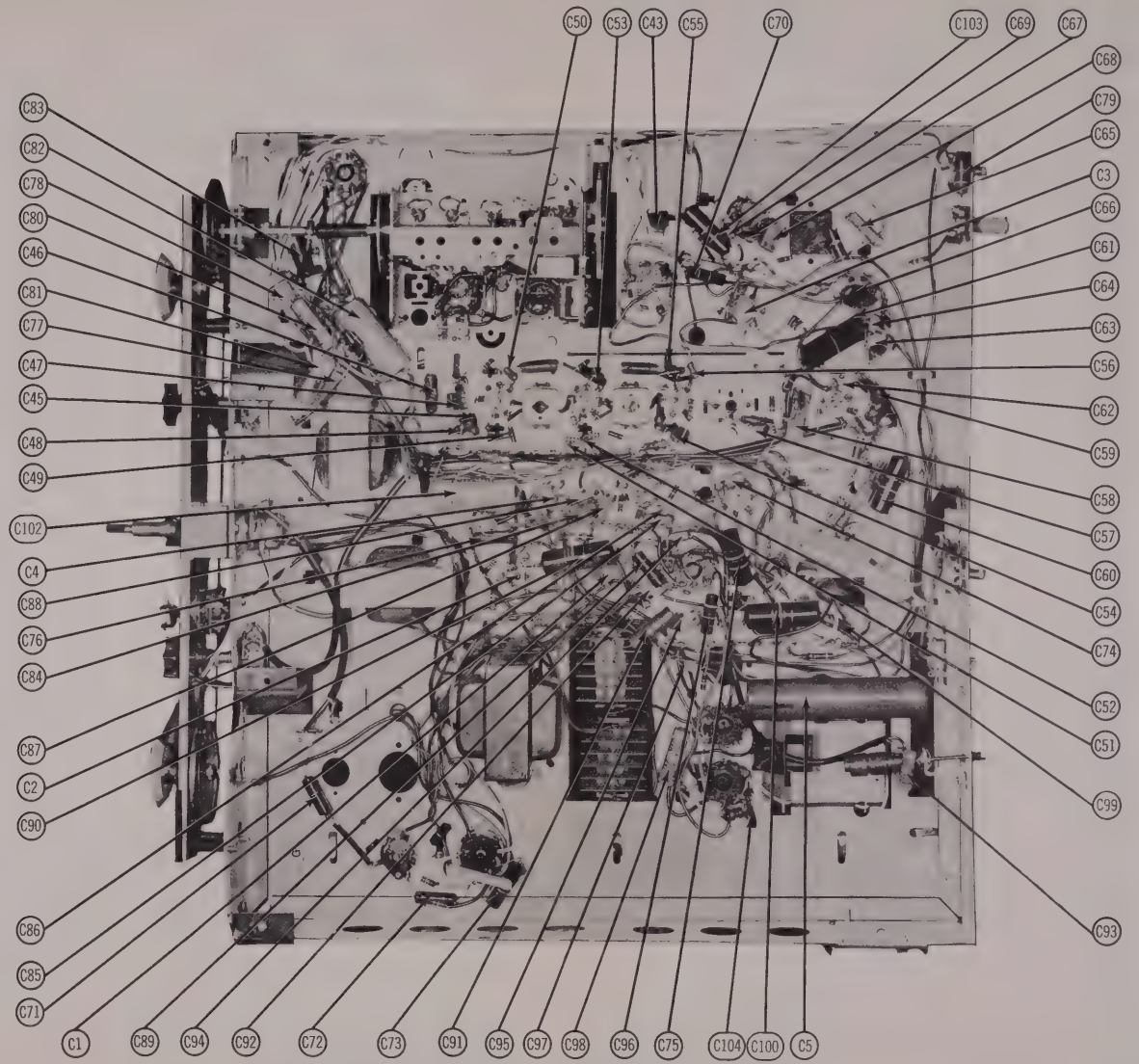


CHASSIS-TOP VIEW

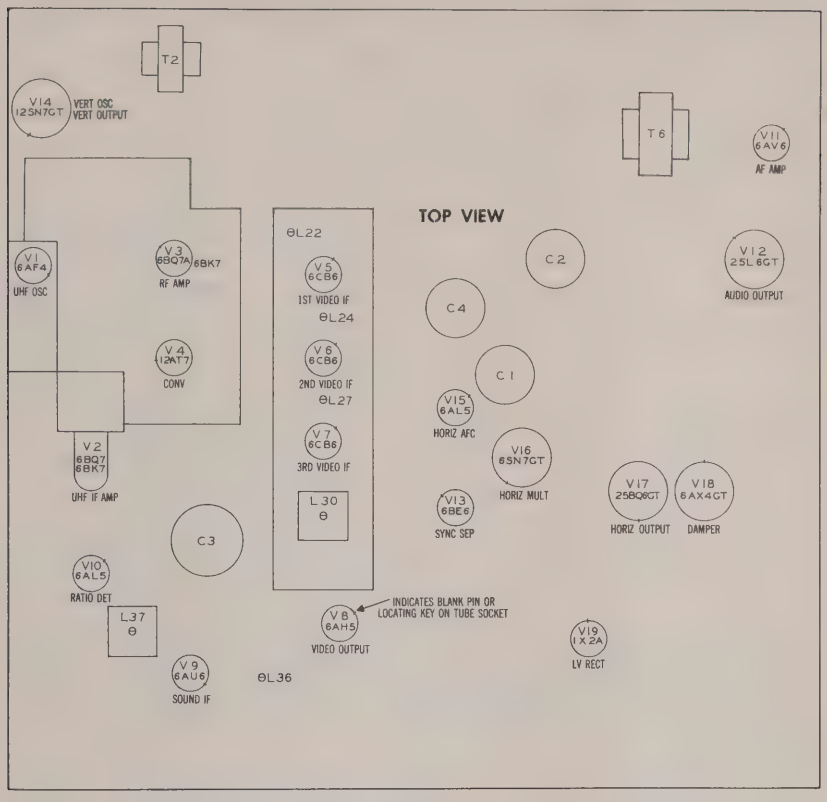


RF TUNER-BOTTOM VIEW



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART



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TUBE FAILURE CHECK CHART

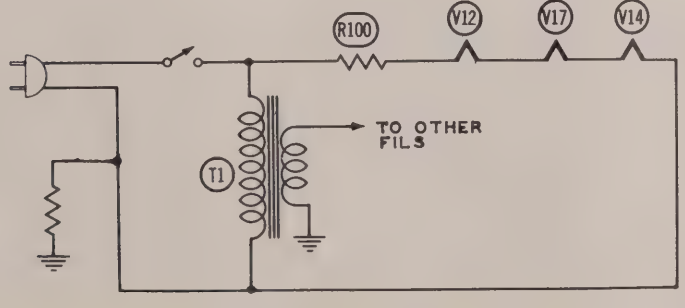
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Selenium Rectifiers (M1 & M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V4, V5, V6, V7, V8 (V1 UHF only)**
No pic, no sound, has snow - **V3, V4, V5**
No pic, has sound, has raster - **V8, V20**
Has pic, no sound - **V9, V10, V11, V12**

SYNC FAILURE
No vert. sync - **V13, V14**
No horiz. sync - **V13, V15, V16**
No vert. or horiz. sync - **V13**

SWEEP FAILURE
No raster, has sound - **V16, V17, V18, V19, V20**
No vertical deflection - **V14**
Poor vert. linearity or foldover - **V14**
Poor horiz. linearity or foldover - **V16, V17, V18**
Narrow picture - **V16, V17, V18, V19, M1, M2**
Vert. off freq. - **V13, V14**
Horiz. off freq. - **V13, V15, V16**



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

CAUTION: An isolation transformer should be used to remove shock hazard and to protect the receiver and test equipment. The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Set the fringe Local Surburban switch to "fringe" position.
A very short lead from the generator to the converter grid (point E) is necessary to prevent regeneration.
Connect a .001MFD across vertical amplifier input terminals of oscilloscope. Connect a 10KΩ resistor in series with high side of scope vertical amplifier input.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001MF	High side to pin 1 (grid) of 6CB6 (V7). Low side to chassis top plate.	25MC (10MC Swp)	23.5MC 26.2MC	13	Vert. amp. to point ⓐ. Low side to chassis top plate.	A1, A2, A3	Connect short between pins 5 and 6 of V6. Adjust generator for 1 volt peak to peak o scope. Adjust A1, A2, and A3 for response as in Fig. 1 A3 is an adjustable coupling rod on bottom of L30.
2.	"	High side to point Ⓔ. Low side to chassis top plate.	Not used	21.4MC	"	Use VTVM DC probe to point ⓐ. Common to chassis top plate.	A4	Remove short from pins 5 and 6 of V6. Alternate generator to maintain 2 volts at VTVM. Adjust A4 for maximum deflection.
3.	"	"	"	26.5MC	"	"	A5	Adjust for maximum deflection.
4.	"	"	"	21.4MC	"	"	A4	"
5.	"	"	"	23.8MC	"	"	A6	"
6.	"	"	"	25.0MC	"	"	A7	"
7.	"	"	25MC (10MC Swp)	23.5MC 26.75MC	"	Vert. amp. to point ⓐ. Low side to chassis top plate.	A1	Adjust A1 for flat top response curve as in Fig. 2 If response is not as shown, repeat the alignment procedure.

4.5MC TRAP ALIGNMENT

Tune in a TV station and adjust the fine tuning until sound bars just appear in the picture.
Starting from extreme counter clockwise position adjust A8 in a clockwise direction from minimum sound indication in picture. Do not adjust for maximum sound from speaker.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point B to B-. The junction of these two resistors is alignment point D as shown on the schematic.
Short the antenna terminals to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001MFD	High side to point Ⓐ. Low side to chassis top plate.	4.5MC (Unmod)	Any	DC probe to point ⓐ. Common to chassis top plate.	A9	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point Ⓒ. Common to point ⓐ.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.
Short antenna terminals to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.001MFD	High side to point Ⓐ. Low side to chassis top plate	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point Ⓔ. Low side to chassis top plate.	A9	Disconnect stabilizer capacitor C3D. Adjust for curve of maximum amplitude and symmetry as in Fig. 3.
9.	"	"	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis top plate.	A10	Reconnect stabilizer capacitor C3D. Adjust so that 4.5MC occurs at center of cross-over lines as in Fig. 4. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

TUNER ALIGNMENT

Preset the trimmer screws as shown in fig. 5.
Turn the fine tuning control to the top of its stroke in low band position.
Adjust coil cores so that bottom of cores are 1.6 inches above bottoms of coil forms.
Connect a .001MFD capacitor across scope input terminals and 10KΩ in series with hot lead of scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

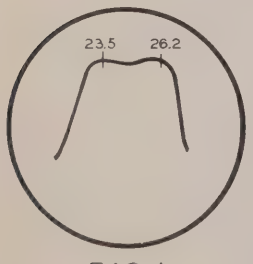


FIG. 1

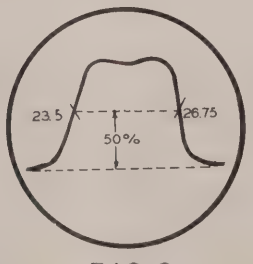


FIG. 2

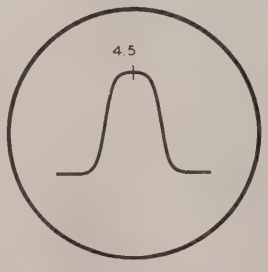


FIG. 3

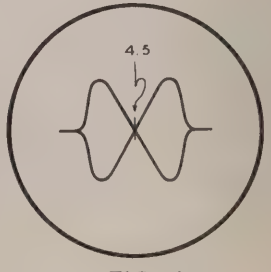


FIG. 4

ALIGNMENT INSTRUCTIONS (cont)

UNIVERSITY OF DENVER COLORADO

LOW BAND RF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead	85MC (10MC Swp)	83.25MC 87.75MC	6	Vert. amp. to point (E). Low side to chassis top plate.	A11, A12 A13	Adjust for maximum response as in Fig. 6.
11.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"		Check for response similar to Fig. 6. If necessary, retouch A12 and A13 for nearest approch to Fig. 6 on all low band channels.
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

HIGH BAND RF ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point (E). Low side to chassis top plate.	A14, A15, A16	Adjust for maximum response as in Fig. 6.
13.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check for response similar to Fig. 6. If necessary, retouch A15 and A16 for nearest approach to Fig. 6 response on all high band channels.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			

OSCILLATOR ALIGNMENT

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	85MC (10MC Swp)	83.25MC	6	Vert. Amp. to point (A). Low side to chassis top plate.	A17	Adjust to place video marker at 50% on low frequency slope of response as in Fig. 7.
15.	"	"	69MC (10MC Swp)	67.25MC	4	"		Check for marker placement as in Fig. 7. If necessary, makes SLIGHT compromise adjustment of A17 for best marker placement across low band channels.
			57MC (10MC Swp)	55.25MC	2			
16.	"	"	213MC (10MC Swp)	211.25MC	13	"	A18	Adjust to place video marker of 50% on low frequency slope as in Fig. 7.
17.	"	"	195MC (10MC Swp)	193.25MC	10	"		Check for marker placement as in Fig. 7. If necessary make SLIGHT compromise adjustment of A18 for best marker placement across high band channels.
			177MC (10MC Swp)	175.25MC	7			

UHF TUNER

The cascode pre-IF amplifier can be aligned, if necessary by connecting a 25MC unmodulated signal to the junction of C9 and L3 and the DC probe of a VTVM to point A . Adjust A19 and A20 for maximum deflection on VTVM. Couple generator through 1MMF to junction of C9 and L3.

In the event of dial cord replacement or component replacement, the RF cavity may be adjusted for peak performance. Tune to a UHF program, loosen the pulley positioning screw (fig. 8), and rotate the RF drive pulleys for best picture.

Tighten the positioning screw.

Complete realignment of the UHF tuner involves the use of precision UHF test equipment and should not be attempted in the field.

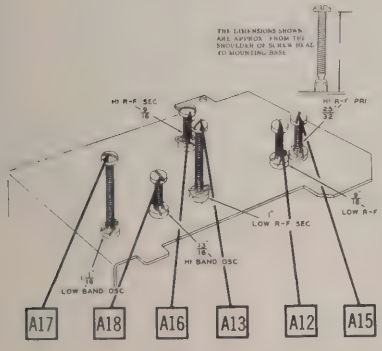


FIG. 5

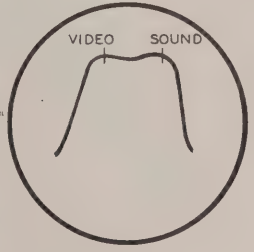


FIG. 6

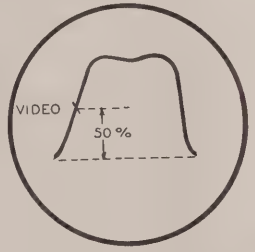


FIG. 7

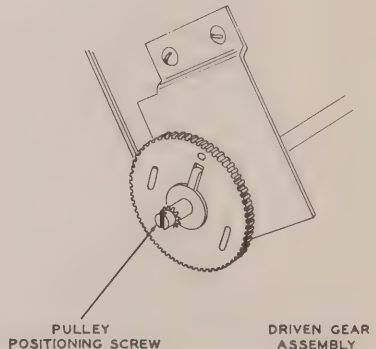
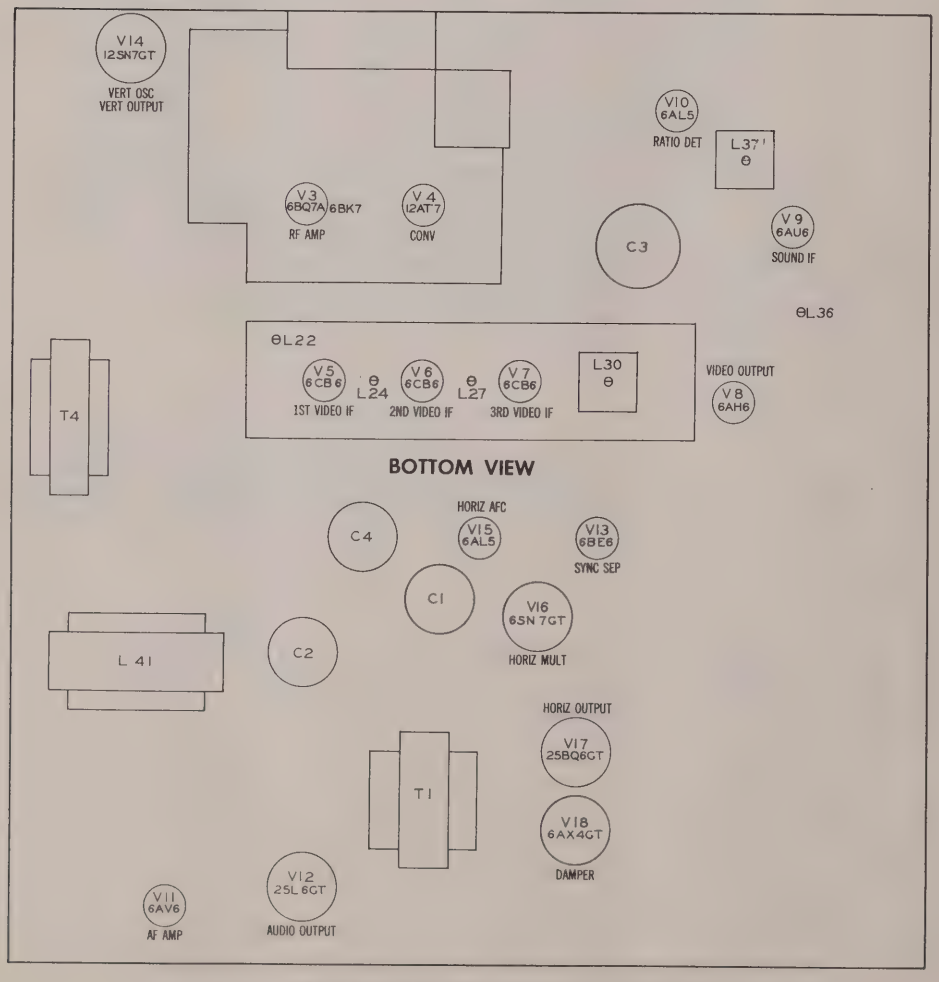


FIG. 8

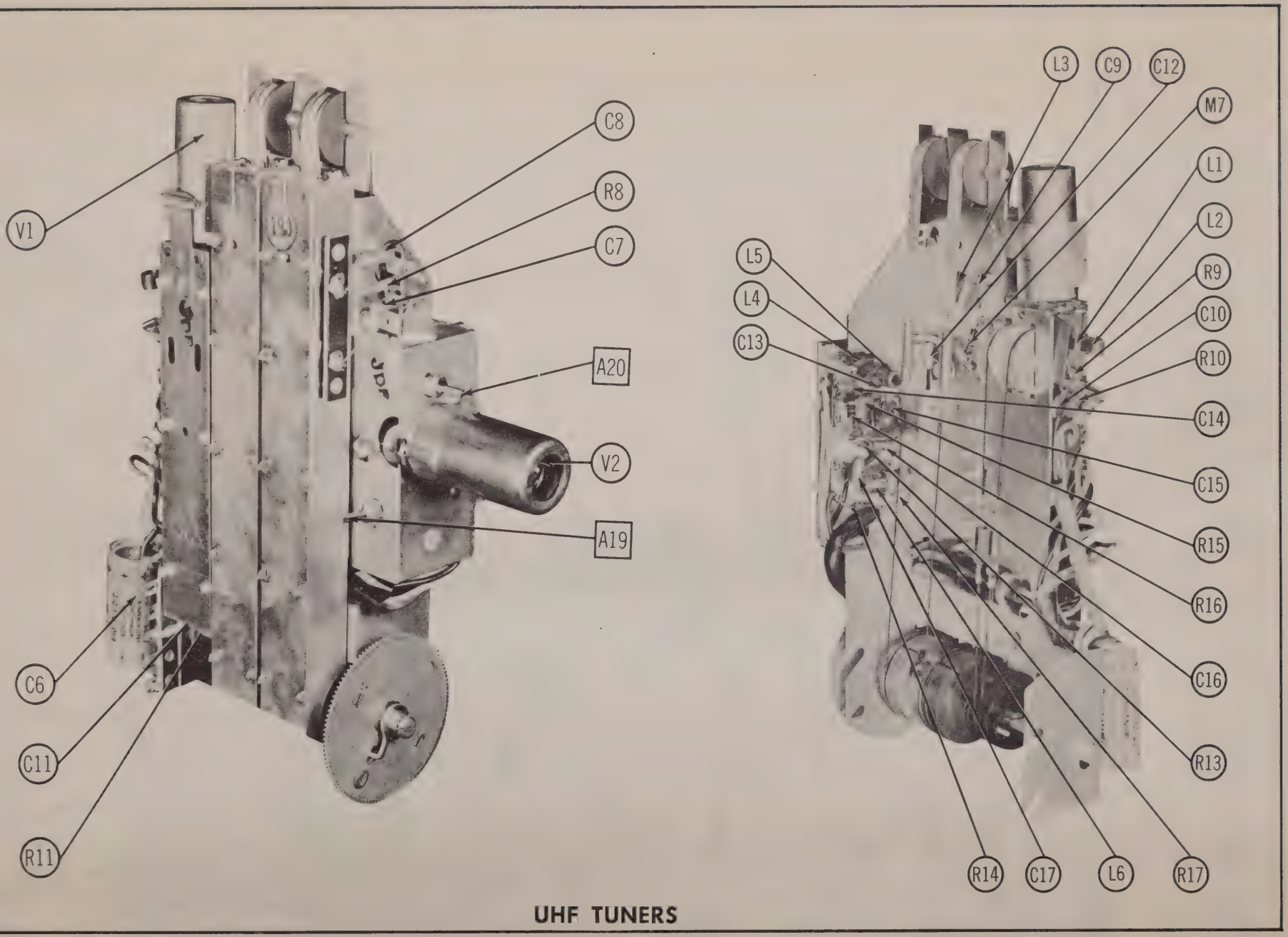
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AF4	■†11KΩ	4.7KΩ	.2Ω	0Ω	0Ω	4.7KΩ	■†11KΩ		
V 2	6BK7	INF	1Meg	0Ω	.1Ω	0Ω	■†1.5KΩ	INF	INF	0Ω
V 3	6BK7	INF	1Meg	0Ω	0Ω	.2Ω	†1KΩ	INF	INF	0Ω
V 4	12AT7	†170Ω	12KΩ	2.2KΩ	0Ω	0Ω	†27KΩ	240KΩ	0Ω	.2Ω
V 5	6CB6	1Meg	47Ω	0Ω	.3Ω	†2.5KΩ	†2.5KΩ	0Ω		
V 6	6CB6	1Meg	47Ω	0Ω	.2Ω	†2.5KΩ	†2.5KΩ	0Ω		
V 7	6CB6	2.2Ω	82Ω	0Ω	.1Ω	†2.5KΩ	†2.5KΩ	0Ω		
V 8	6AH6	470KΩ	225Ω	.1Ω	0Ω	†5.6KΩ	†27KΩ	225Ω		
V 9	6AU6	100KΩ	0Ω	.1Ω	0Ω	†8.2KΩ	†8.2KΩ	120Ω		
V 10	6AL5	22KΩ	0Ω	.1Ω	0Ω	INF	0Ω	INF		
V 11	6AV6	10Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	†220KΩ		
V 12	25L6GT	INF	‡30Ω	†2.4KΩ	†2.2KΩ	470KΩ	INF	‡23Ω	120Ω	
V 13	6BE6	50KΩ	0Ω	0Ω	.1Ω	†60KΩ	†22KΩ	1Meg		
V 14	12SN7GT	700KΩ	♦1.1Meg	8.2KΩ	1Meg	♦1.3KΩ	2.5KΩ	‡8Ω	‡15Ω	
V 15	6AL5	2.2Meg	150KΩ	.1Ω	0Ω	2.2Meg	0Ω	4.5Meg		
V 16	6SN7GT	150KΩ	†100KΩ	820Ω	5Meg	†5.7KΩ	820Ω	.1Ω	0Ω	
V 17	25BQ6GT	INF	♦23Ω	INF	†8.2KΩ	470KΩ	INF	‡15Ω	0Ω	TOP CAP ♦12Ω
V 18	6AX4GT	INF	♦2Ω	200KΩ	2.5Ω	†73Ω	†70Ω	.1Ω	0Ω	
V 19	1X2A	PINS 1 - 9 HAVE INF RESISTANCE								TOP CAP ♦200Ω
V 20	21FP4A	0Ω	3.3KΩ	PIN 6 †70Ω	PIN 10 ♦1KΩ	PIN 11 155KΩ	PIN 12 .1Ω			

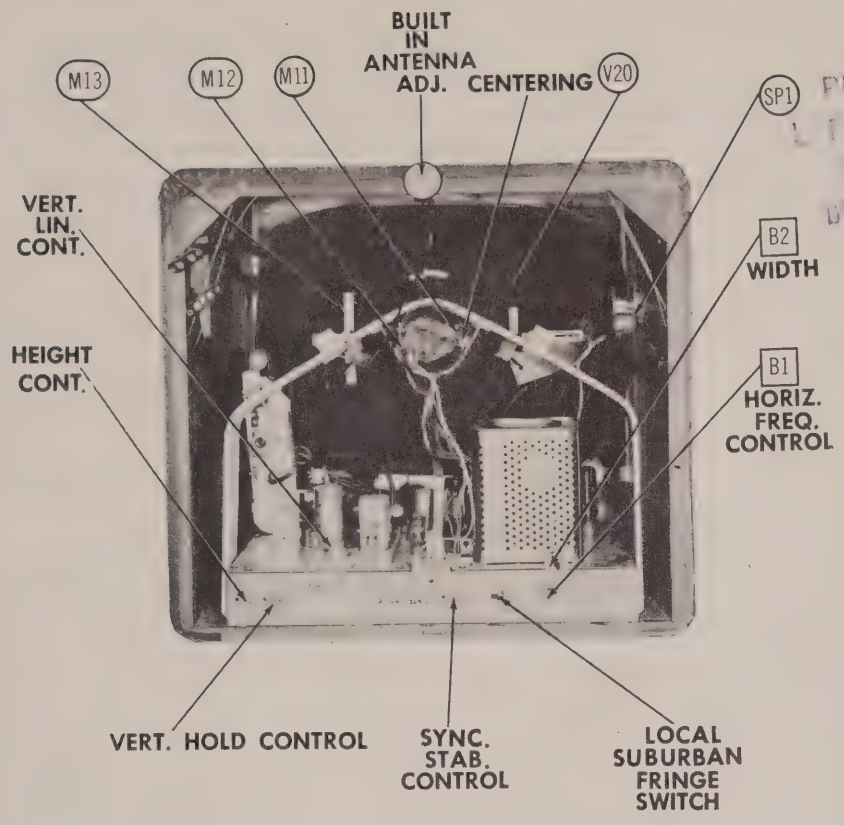
ALL READINGS TAKEN IN VHF POSITION UNLESS OTHERWISE NOTED
■ MEASURED WITH VHF-UHF SWITCH IN UHF
† MEASURED FROM OUTPUT OF M2
♦ MEASURED FROM PIN 3 OF V18
† MEASURED FROM COLD SIDE OF ON/OFF SWITCH



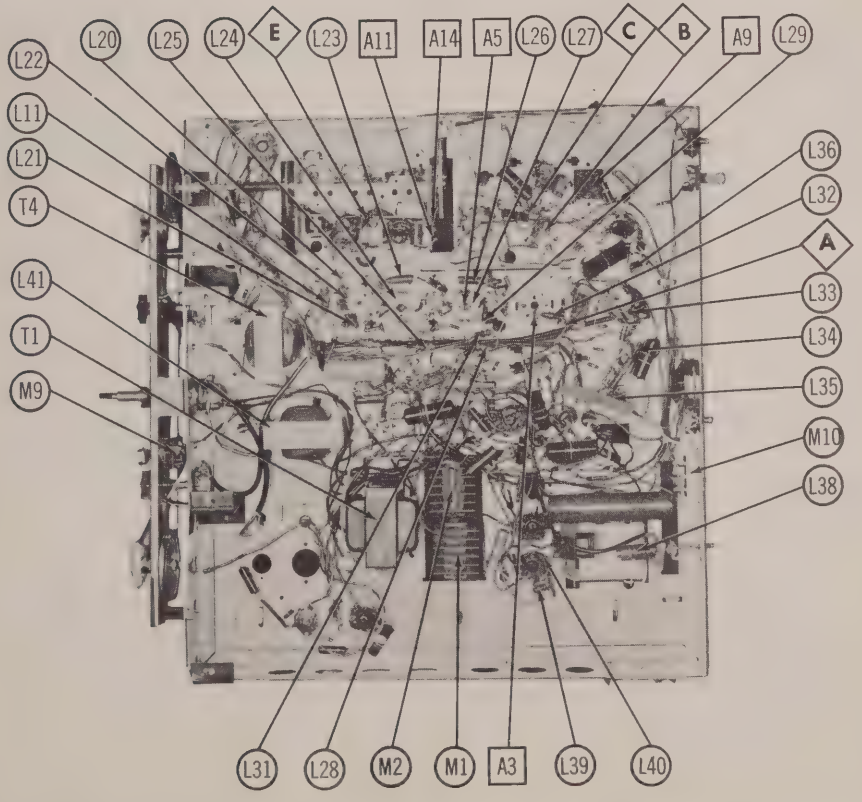
TUBE PLACEMENT CHART


V1
C8
R8
C7
A20
V2
A19
C6
C11
R11
L3
C9
C12
M7
L1
L2
L5
R9
L4
C10
C13
R10
C14
C15
R15
R16
C16
R13
R14
C17
L6
R17

UHF TUNERS



CABINET-REAR VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

TROUBLE SHOOTING AIDS

CAUTION

To prevent overloading of circuits and possible component failure, remove AC power before attempting tube substitution in this receiver.
The top chassis plate, during operation, is at 125 VDC potential and may also be at the line voltage potential depending on how the line cord is inserted.
To avoid shock hazard and/or damage to the receiver and/or test equipment, use an isolation transformer between the line cord and power receptacle on the receiver.

SWEEP

HORIZONTAL

LOSS OF SWEEP

See "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V16, V17 and V18. Check waveform W13.

If Satisfactory	If Unsatisfactory
Check T3, T5A, C98, C100, C5, R97 and other associated components.	Check C92, C94, C95, C96, C97 R90, R92, R96 and other associated components.

DRIVE LINES

Check by substitution V16, V17, and V18. Check C94, C95, C96, C97, R90, R92, R96, T3, T5A and other associated circuit components.

COMPRESSED LEFT SIDE (POOR HORIZONTAL LINEARITY)

Check by substitution V16, V17 and V18. Check C98, C99, C100, C5, T3, T5A R97, C97 and other associated circuit components.

FOLDS

Substitute V18. Check damper circuit components including T3 and T5A.

XMAS TREE EFFECT

Substitute V16. Check C92, C93, C 94, L38 and other components associated with V16.

VERTICAL

LOSS OF SWEEP

Substitute V14. Check waveform W7.

If Satisfactory	If Unsatisfactory
Check T4, T5B, vertical linearity control and other components associated with the vertical output stage.	Check R76, R79, C82, R4 and other components associated with the vertical oscillator stage.

INSUFFICIENT SWEEP

Substitute V14. Check adjustment of height and vertical linearity controls. Follow procedure outlined under "Loss of Sweep".

COMPRESSED AT BOTTOM

Substitute V14. Check C82, R4, C79, R76, R79, R78, C83, T4, T5B and other associated circuit components.

COMPRESSED AT TOP

Substitute V14. Check R7, C3C and other associated circuit components.

FOLDS

Substitute V14. Check T4, T5B and other associated circuit components.

SYNC

LOSS OF HORIZONTAL AND VERTICAL SYNC

Substitute V13. Check setting of the Local Suburban Fringe Switch and adjustment of the sync stabilizer control. Check components associated with V13.

CRITICAL HORIZONTAL AND VERTICAL HOLD

Substitute V13. Check LSF switch setting and adjustment of the sync stabilizer control. Check video IF alignment and components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V14. Check vertical integrator network and components associated with the vertical oscillator.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Substitute V15 and V16. Check components associated with these stages.

VIDEO

LOSS OF VIDEO

Check C60, R48, brightness control, picture tube and associated components.

SOUND BARS (4.5MC BEAT)

Check adjustment of oscillator tuning. Check video IF alignment.

NEGATIVE PIX

Substitute V8. Check video detector crystal and assembly. Check AGC network for proper setting and operation.

POOR CONTRAST

Substitute V8. Check video detector crystal and assembly. Check picture tube and other associated circuit components.

SMEAR OR WASHED OUT PIX

Check setting of Local Suburban Fringe Switch. Substitute V8. Check video detector crystal and assembly. Check C57, C58, C59, C60, C4A, R43, R44, R46, L33, picture tube and other associated components.

WIDE BLACK BAR ACROSS PIX

Check V3, V4, V5, V6, V7 and V8 for heater to cathode leakage. In case of UHF check V1 and V2.

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

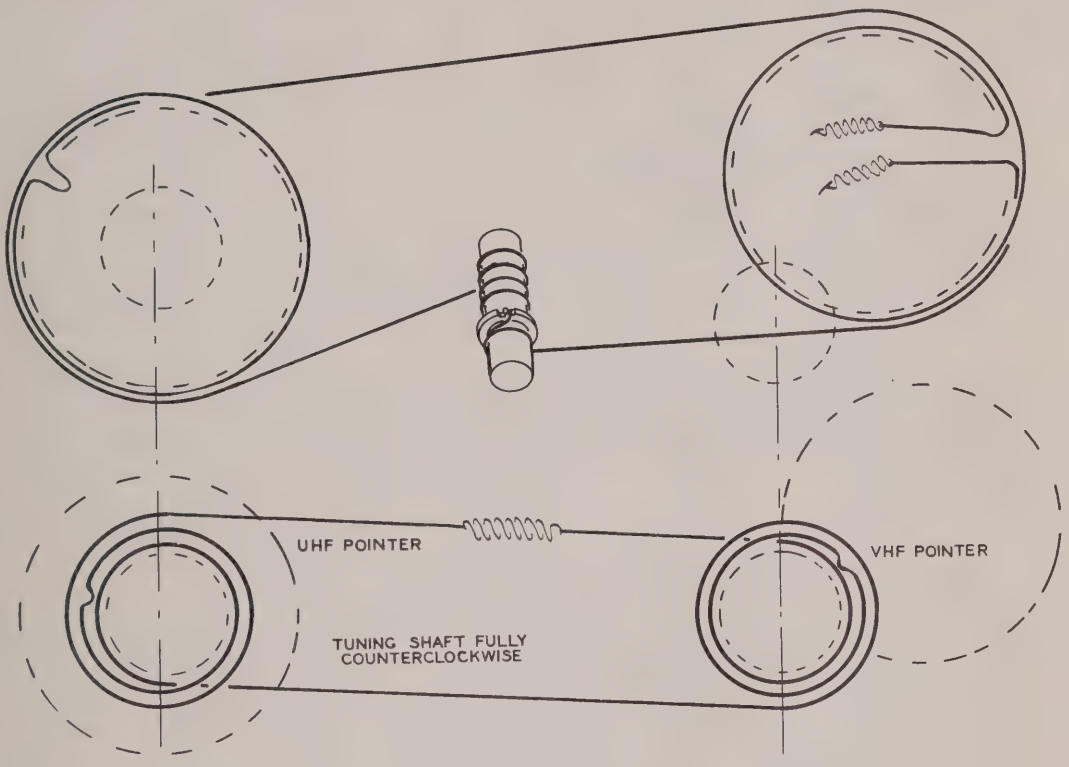
Set the contrast control for normal contrast. Turn the horizontal hold thumb screw clockwise until it reaches its stop, then counter clockwise two fully turns.

The thumb screw is a vernier adjustment and should then be in the center of its range.

Adjust the horizontal hold slug (B1) until the picture synchronizes horizontally and make any further adjustment of B1 necessary to set it in the middle of its range of synchronization.

Adjust the horizontal size (B2), for a picture slightly wider than necessary to fill the picture mask horizontally.

PROPERTY OF
L. F.
DENVER, COLORADO



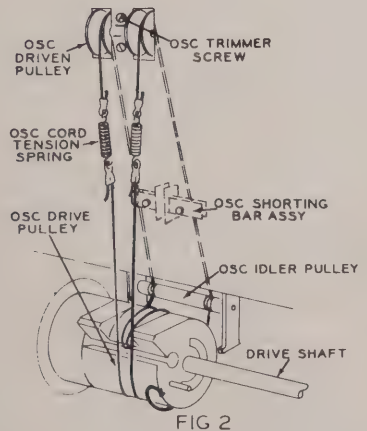


FIG 2

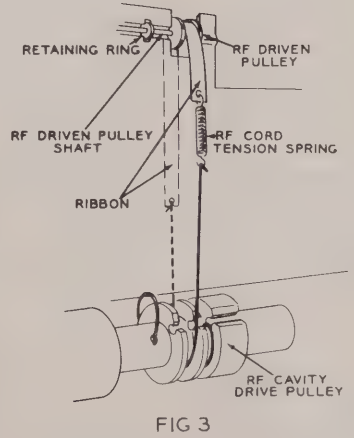


FIG 3

If for any reason the drive cord of either the RF or oscillator cavities need replacement, the exact cord and length are recommended. The cord used is of a special material which is not affected by temperature or moisture. Refer to the parts list for the correct replacement. The oscillator drive assembly consists of four (4) separate drive cords each locked to the oscillator drive pulley (Fig. 1). Each RF drive assembly consists of two separate drive cords which are locked to the RF cavity drive pulley (Fig. 2). If the drive cord requires replacement, the picture tube should be removed along with the cavity cover. Follow the diagram and replace the cord as indicated. After replacement follow the instructions for realignment on page 7.

DIAL CORD STRINGING

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PARTS LIST & DESCRIPTION

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	UHF Oscillator	6AF4	6AF4	7DK	
V2A	UHF IF Amplifier	6BQ7	6BQ7	9AJ	
B	UHF IF Amplifier	6BK7	6BK7	9AJ	
V3A	VHF RF Amplifier	6BQ7A	6BQ7A	9AJ	
B	VHF RF Amplifier	6BK7	6BK7	9AJ	
V4	VHF Converter	12AT7	12AT7	9A	
V5	1st. Video IF Amp.	6CB6	6CB6	7CM	
V6	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V7	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V8	Video Output	6AH6	6AH6	8BD	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Detector	6AL5	6AL5	6BT	
V11	AF Amplifier	6AV6	6AV6	7BT	
V12	Audio Output	25L6GT	25L6GT	7S	
V13	Sync Separator	6BE6	6BE6	7CH	
V14	Vert. Oscillator-Vert. Output	12BN7GT	12BN7GT	8BD	
V15	Horiz. AFC	6AL5	6AL5	6BT	
V16	Horiz. Mult.	6BN7GT	6BN7GT	8BD	
V17	Horiz. Output	25BQ6GT	25BQ6GT	6AM	
V18	Damper	6AX4GT	6AX4GT	4CG	
V19	HV Rectifier	1X2A	1X2A	9Y	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA: GENERAL ELECTRIC PART No.	RTMA BASE TYPE	NOTES
V20A	21FP4A	21FP4A	21FP4A	12C	① Circuit changes necessary
		21FP4 ①	21FP4 ①	12C	
B	17HP4	17HP4	17HP4	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SPRAGUE PART No.	NOTES
C1	100	150	8C-20709	AFHSI-69		XA003		FP116	TVL-1423	
C2	100	150	8C-20684	AFHSI-68		XA003		FP116	TVL-1423	
C3A	▲100	300	8C-20808	AFH4-1/0		DO75		FP424.1	TVL-4706	
B	▲10	450		*PRS235/100		BRH251A		TC2501	TVA-1207	
C	100	25								
D	▲10	75								
C4A	▲10	300	8C-20954	AFH3-124		CO21		FP330.5	TVL-3560	
B	▲10	500								
C	10	15								
C5	50	350	8C-21274	PRS450/50		BR503S		TC68	TVA-1713	
C6	8	450	8G-13453	PRS450/8		BR845A		TC71	TVA-1704	
C7	100		8G-19462	S1100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C8	100		8G-19882	S1100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C9	30		8G-21315							
C10A	1000		8G-19509	BPD-2X001	DD2-102	TM5DD1	812-001	DCD-521	5HK-2D1	
B	1000									
C11	1000		8G-20878	EF-001	MFT-1000				503C-D1	
C12	20		8G-21951							
C13	47		8G-20740	BPD-000047	D6-470		GP1K-470	UC-5447	5GA-Q47	
C14A	1000		8G-19506	BPD-2X001	DD2-102	TM5DD1	812-001	DCD-521	5HK-2D1	
B	1000									
C15	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C16	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C17	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C18	5000		8G-13963	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C19	22		8G-18892	S12N750	TCN-22		N750K-220		5TCU-Q22	
C20	220		8G-18045	S1220	D6-221		GP3K-221	UC-5323	5GA-T22	
C21	1.7		8G-12495-8							
C22	8		8G-20880							
C23	1000		8G-20850	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C24	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C25	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C26	15		8G-13017	S15NP0	TCZ-15		NP0K-150		5TC-Q15	
C27	1		8G-12495-1	S1NP0	TCZ-1		NP0K-010		5TCCB-V1	
C28	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C29	4		8G-19316							
C30	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C31	1		8G-12495-8	S1NP0	TCZ-1		NP0K-010		5TCCB-V1	
C32	1000		8G-20878	EF-001	MFT-1000				503C-D1	
C33	1		8G-12495-3	S1NP0	TCZ-1		NP0K-010		5TCCB-V1	
C34	51		8G-18891							
C35	7		8G-19224							
C36	2.5		8G-19568							
C37	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C38	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C39	1000		8G-20878	EF-001	MFT-1000				503C-D1	
C40	1000		8G-20878	EF-001	MFT-1000				503C-D1	
C41	1000		8G-20878	EF-001	MFT-1000				503C-D1	
C42	6		8G-20879							
C43	5000		8G-13962	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C44	7		8G-19224							Note 2.
C45	5000		8G-13962	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C46	10		8G-11789	S1D	D6-100	5W5QL	GP1K-100	UC-541	5GA-Q1	
C47	100	500	8F3-8	16S8-0001	D6-101	5WT71	GP1K-101		1FM-31	
C48	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C49	2000		8G-19522	S12000	D6-202	TM5D2	GP2-333-202	UC-523	5HK-D2	
C50	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C51	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C52	680		8G-21105	S1680	D6-681		GP2K-681	UC-5368	5GA-T68	
C53	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C53	5000		8G-13962	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C55	5000		8G-13962	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C56	1000		8G-13201	S11000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C57	5		8G-12166	S1SNP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	

CAPACITORS (cont)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: MALLORY PART No.	REPLACEMENT DATA: SPRAGUE PART No.	NOTES
C58	.1	200	8J-16085	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C59	5000		8G-13962	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C60	.1	400	8J-16083	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C61	.33	200	8J-16082	P488-22		PTE4P22		PT4025	4TM-P22	
C62	5		8G-12166	S1SNP0	TCZ-4.7		NP0K-050	ZT-555	5TCCB-V47	
C63	22		8G-13909	S12N150	TCN-22		N150K-220		5TCU-Q22	
C64	47		8J-12186	S147	D6-470		GP1K-470	UC-5447	5GA-Q47	
C65	.0022	400	8J-20634	P888-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C66	5000		8G-13962	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C67	5000		8G-13962	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C68	580	500	8F3-122							
C69	5000		8G-13962	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C70	.01	400	8J-20582	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C71	.01	400	8J-20582	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C72	.01	400	8J-16084	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C73	.015	400	8J-20594	P488-015		PTE4S15		PT415	4TM-S15	
C74	.0022	400	8J-20590	P888-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C75	.1	400	8J-16083	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C76	.0047	400	8J-20592	P888-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C77	.022	200	8J-16086	P488-022		PTE4S22		PT4122	4TM-S22	
C78	.047	200	8J-16096	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C79	.01	400	8J-16084	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C80	.047	400	8J-16081	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C81	.047	200	8J-16096	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C82	.47	400	8J-21505	484-5		PJ4P5		PT405	4TM-P5	
C83	.01	600	8J-18097	P868-01	D6-103	PTE8S1	GP2-333-103	PT611	6TM-S1	
C84	100	500	8F3-113	1469-0001		5R5T1		MCB235	M3-31	
C85	220	500	8F3-117							
C86	580	500	8F3-123							
C87	220	500	8F3-117							
C88	680	500	8F3-123							
C89	.01	400	8J-20582	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	Note 1
C90	.22	200	8J-16082	P488-22		PTE4P22		PT4025	4TM-P22	
C91	.047	200	8J-16096	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C92	220	500	8F3-117							
C93	.0039	600	8J-20613	1464-004		1DR5D4		MCB463	M3-24	
C94	330	500	8F3-119							
C95	560	500	8F3-122							
C96	.01	400	8J-16084	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C97	47		8G-12188	S47	D6-470		GP1K-470	UC-5447	5GA-Q47	
C98	.047	400	8J-16081	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C99	470	1000	8G-21440	HVD15-00047				MCK347	10GA-T47	
C100	.22	200	8J-16082	P488-22		PTE4P22		PT4025	4TM-P22	
C101	47		8G-12188							
C102	.47	400	8J-21505	484-5		PJ4P5		PT405	4TM-P5	
C103	.01	400	8J-16083	P488-1		PTE4P1		PT401	4TM-P1	
C104	10000			B9D-01	DD-103	TM5S1	811-01	DC-5U	5HK-S1	Note 2

Note 1. Some Models use .005MFD in this application.
Note 2. Not used in all Models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	REPLACEMENT DATA: CENTRALAB PART No.	REPLACEMENT DATA: MALLORY PART No.	INSTALLATION NOTES
R1A	100KΩ	½	A-10B-17275	Q11-128	AG-49-S	AB-60	U-41	Brightness
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R1A
R2A	1Meg	½	A-10A-21484	Q23-137	AG-53-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	C9	F8-5	Not Req.	D8-36	Attach to R2A
C	Switch		Not Req.	T6-1	SWB	KS-1	US-26	Attach to R2A
R3A	2500Ω	½	A-10B-21476	Q17-111	AG-15-S		U-7	Picture
B	Shaft		Not Req.	Not Req.	KS8-3		Not Req.	Attach to R3A
R4A	750KΩ	½	A-10A-19220	Q11-136	AG-61-S	AB-69	U-51	Height
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Not Req.	Attach to R4A
R5A	500KΩ	½	A-10A-20558	Q11-133	AG-58-S	AB-59	SU-50	Vert. Hold
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Not Req.	Attach to R5A
R6A	500KΩ	½	A-10A-20558	Q11-133	AG-58-S	AB-59	SU-50	Sync Stabilizer
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Not Req.	Attach to R6A
R7	4000Ω	1	10B-21052					Vert. Linearity

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R8	680KΩ	½		BTS-680K	
R9	4700Ω	½		BTS-4700	
R10	22Ω	½		BTS-22	
R11	1600 5%	½			
R12	12KΩ	4		PW4-1250	Note 5
R13	10KΩ	½		BTS-10K	
R14	1500Ω	½		BTS-1500	
R15	27KΩ	½		BTS-27K	
R16	22Ω	½		BTS-22	
R17	3900Ω	½		BTS-3900	
R18	470KΩ	½	9BI-29	BTS-470K	
R19	1000Ω	½	9BI-82	BTS-1000	
R20	10KΩ	½	9BI-74	BTS-10K	
R21	10Ω	½	9BI-38	BTS-10	
R22	1000Ω	½	9BI-13	BTS-1000	
R23	22KΩ	½	9BI-78	BTS-22K	
R24	220KΩ	½	9BI-27	BTS-220K	
R25	10KΩ	½			
R26	100Ω	½		BTS-100	
R27	2200Ω	½		BTS-2200	
R28	1000Ω	½	9BI-82	BTS-1000	
R29	5.6Ω	½	9C1-1072		
R30	27KΩ	½	9B2-79	BTA-27K	
R31	8200Ω	½	9BI-73	BTS-8200	
R32	47KΩ	½	9BI-82	BTS-47K	
R33	47KΩ	½	9BI-82	BTS-47K	
R34	47Ω	½	9BI-46	BTS-47	
R35	100Ω	½	9BI-13	BTS-1000	
R36	47KΩ	½	9BI-82	BTS-47K	
R37	47Ω	½	9BI-46	BTS-47	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R38	1000Ω	½	9BI-13	BTS-1000	
R39	82Ω	½	9BI-49	BTS-82	
R40	1000Ω	½	9BI-13	BTS-1000	
R41	22KΩ	½	9BI-78	BTS-22K	
R42	5600Ω	½	9BI-71	BTS-5600	
R43	470KΩ	½	9BI-94	BTS-470K	
R44	27KΩ	1	9B2-79	BTA-27K	
R45	5600Ω	½	9BI-71	BTS-5600	
R46	5600Ω	2	9B4-71	BTS-5600	
R47	15KΩ	½	9BI-76	BTS-15K	
R48	150KΩ	½		BTS-150K	
R49	3300Ω	½	9BI-88	BTS-3300	
R50	1000Ω	½	9BI-82	BTS-1000	
R51	100KΩ	½	9BI-86	BTS-100K	
R52	120Ω	½	9BI-51	BTS-120	
R53	8200Ω	2	9B4-73	BTS-8200	
R54	47Ω	½	9BI-46	BTS-47	
R55	22KΩ	½	9BI-78	BTS-22K	
R56	22KΩ	½	9BI-78	BTS-22K	
R57	10Meg	½	9BI-110	BTS-10Meg	
R58	220KΩ	½	9BI-90	BTS-220K	
R59	470KΩ	½	9BI-94	BTS-470K	
R60	120Ω	1	9B2-51	BTA-120	
R61	2200Ω	5	9C12-1103	1 3/4A-2250	
R62	1Meg	½	9BI-98	BTS-1Meg	
R63	10Meg	½	9BI-110	BTS-10Meg	
R64	10Meg	½	9BI-110	BTS-10Meg	
R65	47KΩ	½	9BI-82	BTS-47K	
R66	470KΩ	½	9BI-94	BTS-470K	
R67	1Meg	½	9BI-98	BTS-1Meg	

RESISTORS (cont)

ITEM No	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R68	22KΩ	10	9C12-1115	1 3/4A- 22.5K	Note 1
R69	33KΩ	½	9BI-80	BTS-33K	
R70	33KΩ	½		BTS-33K	Note 2
R71	220KΩ	½	9BI-90	BTS-220K	
R72	47KΩ	½	9BI-82	BTS-47K	
R73	8200Ω	½	9BI-73	BTS-8200	
R74	12KΩ	½	9BI-75	BTS-12K	
R75	1800Ω	½	9BI-85	BTS-1800	
R76	220KΩ	½	9BI-90	BTS-220K	
R77	1Meg	½	9BI-98	BTS-1Meg	
R78	150KΩ	½	9BI-88	BTA-150K	
R79	100KΩ	½	9BI-86	BTS-100K	Note 4
R80	1000Ω	½	9BI-82	BTS-1000	
R81	1000Ω	½	9BI-82	BTS-1000	
R82	470KΩ	½	9BI-94	BTS-470K	
R83	150KΩ	½	9BI-88	BTS-150K	
R84	2.2Meg	½	9BI-102	BTS-2.2Meg	
R85	2.2Meg	½	9BI-102	BTS-2.2Meg	
R86	150KΩ	½	9BI-88	BTS-150K	

ITEM No	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R87	680KΩ	½	9BI-86	BTS-680K	
R88	56KΩ	½	9BI-83	BTS-56K	
R89	82KΩ	½	9BI-81	BTS-820	
R90	150KΩ	½	9BI-88	BTS-150K	
R91	5600Ω	1	9B2-71	BTA-5600	
R92	100KΩ	½	9BI-86	BTS-100K	
R93	680KΩ	½	9BI-96	BTS-680K	
R94	820KΩ	½	9BI-97	BTS-820K	
R95	100Ω	½	9BI-50	BTS-100	
R96	470KΩ	½	9BI-94	BTS-470K	
R97	8200Ω	2	9B4-73	BTA-8200	
R98	3.5Ω	½	9C1-1070		Note 3
R99	1500Ω	10	9W-20736	1 3/4A-1500	
R100	175Ω	30	9W-21715	2D-200	
R101	5.5Ω	5	49M-20681		
R102	220KΩ	½	9BI-27	BTS-220K	
R103	470KΩ	½	9BI-94	BTS-470K	
R104	470KΩ			B7S-470K	

Note 1. Some Models may use a 27KΩ, 1 watt resistor in this application.
Note 2. Some Models may use a 12KΩ, ½ watt resistor in this application.
Note 3. Some Models may use a 2.2Ω, ½ watt resistor in this application.
Note 4. Some Models may use a 220KΩ, 1 watt resistor in this application.
Note 5. Some Models may use two 22KΩ, 2 watt resistor in parallel in this application.

TRANSFORMER (FILAMENT)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No	REPLACEMENT DATA: RCA TYPE No.	NOTES
T1	117VAC	6.3VAC ▲ .44A		▲6.1A	12D21160	P-3064①	P-2948 ①	PO-86 ①	F-18X ①		

① Drill one new mounting hole.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: PRI.	RATING: SEC.	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	REPLACEMENT DATA: RCA TYPE No.	NOTES
T2	160Ω	990Ω	12M-18341-3	A-8125	A-3003	TBO-5	A-97X	209T1 ①	Vert. Osc. Trans. Horiz. Output Trans.
T3	215.5Ω tap ▲	5Ω tap ▲ 2.5Ω	201-21025						
	7.5Ω, 15.5Ω, 25.5Ω	SEC. 2 0Ω							
T4	10770 tap ▲ 7Ω		12C-20761-1	A-8141	A-3039	TSO-12	A-104X	228T1	Vert. Output Trans.
T5A	139Ω		201-21514	DY-8 ②	MDF-70 ②	TY-2 ②	Y-12 ②	206D1 ②	Horiz. Deflection Coils
B	76Ω		201-21130 ①	DY-8 ②	MDF-70 ②	TY-2 ②	Y-12 ②	206D1 ②	Vert. Deflection Coils

① Alternate yoke used on 17" Models.
② Use original deflection coil network.
③ Drill one new mounting hole.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE	RATING: DC RES. PRI	RATING: DC RES. SEC	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.	NOTES
T6	2.3KΩ	5Ω	176Ω .55Ω	12C21215	A-3876	A-2928	RO-2	S-1X	

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: VIKING PART No.	REPLACEMENT DATA: QUAM PART No.	NOTES
SP1A	6"	PM	3Ω	18A19895	6J4	6A1	① Alternate 6" PM speaker
B	5"	PM	3Ω	18A21433 ①			
C	10"	PM	3Ω	18A21216 ②	5J4	5A1	② Used in Model 2D-2313A
				18A21442 ③	10J11	10A4A	③ Used in Model 2D-1318A

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: MEISSNER PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: MILLER PART No.	NOTES
L1	Fil. Choke	0Ω		16A-20469				
L2	Cathode Choke	0Ω		16A-20470				
L3	UHF IF Coupling	.8Ω		16A-21934				
L4	RF Choke	2.4Ω		201-20265				
L5	UHF IF Input Coil	.6Ω		201-21933				
L6	UHF IF Output Coil	.8Ω		201-20483				
L7	Ant. Trans.	.9Ω CT	.0Ω	13E-20767				High Band
L8	Ant. Trans.	.1Ω CT	.1Ω	13E-21189				Low Band
L9	Neutr. Coil	0Ω		13M-20781				
L10	RF Choke	0Ω		13M-20780				
L11	Fil. Choke	.1Ω		16A-17837	19-3001	TV-189	6175	3 Microhenries
L12	RF Choke	.9Ω		16A-17128				
L13	RF Coil	0Ω		13E-17140				High Band
L14	RF Coil	0Ω		13E-12046				Low Band
L15	Mixer Grid Coil	0Ω		13E-17140				High Band
L16	Mixer Grid Coil	0Ω		13E-12046				Low Band
L17	Fil. Choke	.1Ω		16A-20777				
L18	Osc. Coil	0Ω		13E-17140				High Band
L19	Osc. Coil	0Ω		13D-12155				Low Band
L20	RF Choke	.2Ω		16A-21856	19-3001	TV-189	4602	1 Microhenries
L21	RF Choke	2.3Ω		201-15608	19-3038	TV-189	4636	20 Microhenries
L22	1st. Video IF	.2Ω		201-20762	17-1003	TV-102 †	6188 †	

PARTS LIST & DESCRIPTION (continued)

COILS (cont)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L23	Fil. Choke	.1Ω		16A-17937	19-3001	TV-189	6175	3 Microhenries
L24	2nd. Video IF	.2Ω		201-21111				Includes 47MMF Cap.
L25	RF Choke	1.8Ω		16A-18676			4606	2.2 Microhenries, IRC part #CLA
L26	Fil. Choke	.1Ω		16A-17937	19-3001	TV-189	6175	3 Microhenries
L27	3rd. Video IF	.2Ω		201-21494				Includes 10KΩ resistor, 470MMF & 47MMF Cap.,
L28	RF Choke	1.8Ω		16A-18676			4606	2.2 Microhenries, IRC part #CLA
L29	RF Choke	2.3Ω		201-15608	19-3036	TV-180	4626	20 Microhenries
L30	4th. Video IF	.3Ω	.4Ω	13B-21167				Includes CK706 Crystal detector, 5MMF Cap., & Series Peak. Coil
L31	RF Choke	2.3Ω		201-15608	19-3036	TV-180	4626	20 Microhenries
L32	Series Peaking Coil	2.6Ω		201-20265	19-3036	TV-180	6176	38 Microhenries
L33	Series Peaking Coil	8.5Ω		16A-20970	19-3250	TV-185	6181	270 Microhenries
L34	Shunt Peaking Coil	9Ω		16A-21391	19-3300		6155	305 Microhenries
L35	Shunt Peaking Coil	8.5Ω		16A-20970	19-3250	TV-185	6181	270 Microhenries
L36	Sound IF	1.6Ω		201-21398	17-3400	TV-151	1469	
L37	Ratio Det.	9Ω	.7ΩCT	13M-21644 *	17-3493	TV-115 ♦	6205 ♦	Tertiary Winding-.4Ω
L38	Horiz. Osc.	85Ω		201-20291	19-1575	TV-163 †	6210 †	
L39	RF Choke	2.3Ω		201-15608	19-3036	TV-180	4626	20 Microhenries
L40	RF Choke	2.3Ω		201-15608	19-3036	TV-180	4626	20 Microhenries, (Not used in all Models)

† Enlarge mounting hole.
* Alternate part #13M-19643
♦ Use adaptor plate

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA: TRUETONE PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.
M1	.280ADC	21J20097	NH5	6Q4	1090	6S300	300
M2	.280ADC	21J20097	NH5	6Q4	1090	6S300	300

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L41	.280ADC	71Ω	2.92 Hy.	16A21214	C-2326	C-2991 ①	TR-3300 ①	C-17X

① Drill one new mounting hole.

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M3	Dial Light	46A-10793	VHF Indicator #47
M4	Dial Light	46A-10793	UHF Indicator #47
M5	VHF Tuner		
M6	UHF Tuner		
M7	Crystal	8M-21655	UHF Converter (CK-710)
M8	Crystal		Video Detector (CK-706)
M9	Switch		UHF-VHF Selector
M10	Switch	20B-21506	Fringe-suburban-local (AGC)
M11	Centering Magnet	16M-20697	
M12	Ion Trap	16M-19906	
M13A	Correction Magnet	16M-21526	(2 used) 17" Models
B	Correction Magnet	16M-21499	(2 used) 21" Models.
A11,A14	Trimmer Cap.	8E-17142	5-20MMF, dual VHF antenna
A12,A13 A15,A16 A17,A18	Trimmer Cap.	201-15142	.5-10MMF (6 used) VHF Tuner
	Cabinet	24D-21564	Model 2D-2313A
	Cabinet	24D-21565	Model 2D-2315A
	Cabinet	24D-21567	Model 2D-1316A
	Cabinet	24D-21653	Model 2D-1326A
	Knob	5M-21418	UHF & VHF Channel Indicator (2 used)
	Knob	25M-18177	Vert. Hold Control - rubber
	Knob	5B-21423A-103	Volume - Model 2D-2313A
	Knob	5B-21423A-92	Volume - Model 2D-2315A
	Knob	5B-21423A-76	Volume - Models 2D-1316A and 2D-1326A
	Knob	5B-21422A-103	Tuning - Model 2D-2313A
	Knob	5B-21422A-92	Tuning - Model 2D-2315A
	Knob	5B-21422A-76	Tuning - Models 2D-1316A and 2D-1326A
	Knob	5B-21393-29	Star - brightness & picture (2 used)
	Cabinet back	200-21438	17" Models
	Cabinet back	200-21578	21" Models
	Mask	25M-21482A-101	Model 2D-2313A
	Mask	25M-21579A-106	Models 2D-2315A & 2D-1326A
	Mask	25M-21579A-103	Model 2D-1316A
	Safety glass	30M-20725	17" Models
	Safety glass	30M-21485	21" Models
	RF Dial Cord	200-21772	With Ribbon (4 11/16")
	RF Dial Cord	200-21357	With Lug (5")
	Osc. Dial Cord	200-21309	With Lug & Spring (10 9/16")
	Osc. Dial Cord	200-21310	With Lug & Spring (7 7/8")

TROUBLE SHOOTING AIDS (cont)

PROPERTY OF
L. F. ILLINGWORTH
3924
DENVER, COLORADO

AUDIO

WEAK OR NO SOUND

Check by substitution V9, V10, V11 and V12. Check stages of V11 and V12 using an audio signal generator. Apply audio signal across R57.

If Satisfactory	If Unsatisfactory
Check audio IF and ratio detector alignment and circuit components.	Check components associated with V11 and V12.

BUZZ

Adjust A10 for minimum buzz. If buzz is still objectionable, substitute V10 and realign audio section using procedure outlined in the alignment section. Check C3D and other associated components.

DISTORTED

Check by substitution V9, V10, V11, and V12. Check stages of V11 and V12 using an audio signal generator and scope.

If Satisfactory	If Unsatisfactory
Check audio IF and ratio detector alignment and circuit components.	Check components associated with V11 and V12.

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly and switch on volume control. If filaments light, check M1, M2, R101 and other components associated with the B+ network.

SMALL AND/OR DIM RASTER

Check M1, M2, C1, C2, C3A and other components of the B+ network.

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V16, V17, V18 and V19. Check waveform at W13.

If Satisfactory	If Unsatisfactory
Check C98, C99, C100, C5, T3, T5A R98, R97 and other components.	Check C92, C94, C95, C96, C97 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V16, V17, V18, and V19.. Check B+.

If Satisfactory	If Unsatisfactory
Proceed as outlined under "Loss of High Voltage".	Check M1, M2, C1, C2, C3A and other B+ components.

BLOOMING

Check by substitution V16, V17, V18 and V19. Check R98, T3, T5A and other associated components.

GENERAL

RASTER SOUND NO PIX

See "Loss of Video".

RASTER NO SOUND NO PIX

Check UHF-VHF switch position. Check by substitution V3, V4, V5, V6, V7 and V8. Check video detector crystal and assembly. Check components associated with these stages.

NO RASTER NO SOUND

See "Dead Set"

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

UHF

If it becomes necessary to replace the crystal detector or other soldered in components, it will be necessary to remove the picture tube.
When servicing the UHF tuner, care should be exercised not to move or rearrange components or mechanical parts. In replacing any components exact lead length and physical position should be maintained.
If receiver does not operate in UHF position, check the UHF-VHF switch, substitute the oscillator (6AF4) and cascode amplifier (6BQ7A) tubes.
Check voltages at the UHF power socket or cable connection in the receiver.

A check, to determine if the UHF oscillator is functioning, may be made by connecting a 100micro-amp meter across R10. A reading of 10 to 30 micro-amps should be obtained. To determine if both oscillator and crystal detector are functioning properly, connect a 100 micro-amp meter across R16. A 5 to 40 micro-amp reading should be obtained.
CAUTION No attempt should be made to readjust the tracking screws, oscillator trimmer screw or oscillator cavity. Precision test equipment is necessary for these adjustments.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this receiving equipment.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

For touch-up adjustment of RF tuner oscillator adjustments, it is necessary to remove the chassis from the cabinet. (See disassembly instructions).

PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass or the face of picture tube remove three (3) phillips head screw holding metal strip at bottom of safety glass. Remove metal strip and safety glass by pulling out and down from the bottom.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be made from the rear panel of chassis. Adjust the horizontal hold slug (L38) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L37) located on top of chassis. (See tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting a magnetic ring around the neck of the picture tube located flush against the yoke cover. Turn the knurled knob and at the same time rotate the ring around the tube.until the picture is properly centered.

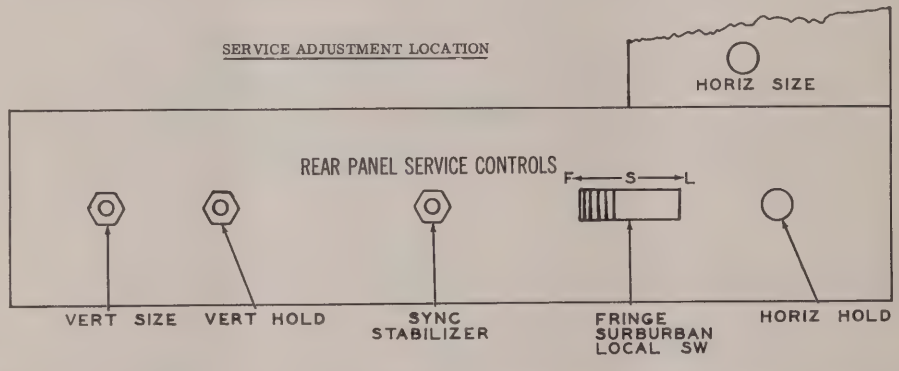
BUILT-IN ANTENNA TUNING

The built-in antenna can be adjusted from rear of the cabinet. Adjust for a picture of maximum contrast and minimum ghost.

ANTI-PIN CUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible, and position the magnets so that all sides are straight lines and the corners are at right angles.

SERVICE ADJUSTMENT LOCATION



DISASSEMBLY INSTRUCTIONS

1. Remove 2 push on type control knobs and 1 selection lever from front panel. Remove 3 screws and remove escutcheon.
2. Disconnect built-in antenna.
3. Remove 4 screws. Remove VHF & UHF antenna brackets from rear cover.
4. Disconnect speaker. Remove 2 speaker nuts. Remove speaker.
5. Remove 6 chassis bolts. Remove chassis.

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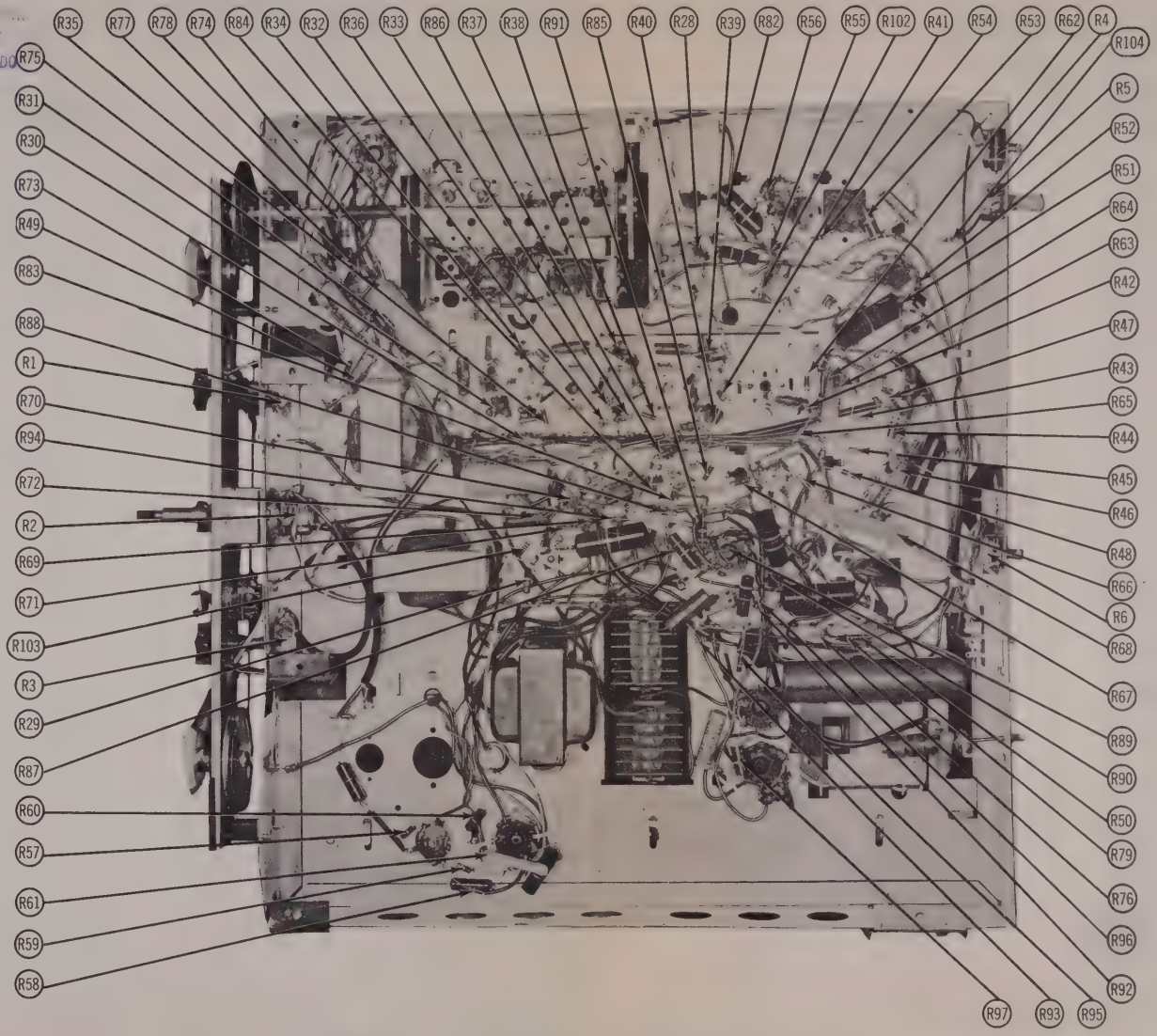

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

ZENITH
MODELS L505F, R, Y (Ch. 5L41)

ZENITH
MODELS L505F, R, Y (Ch. 5L41)

PRO
L.-F. E
3924
DENVER, Colorado

ZENITH
MODELS L505F, R, Y (Ch. 5L41)

TRADE NAME	Zenith Models L505F, R, Y (Ch. 5L41)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago, Ill.
TYPE SET	Three Power Portable Superheterodyne Receiver
TUBES (Five)	Types 1U4 RF Amp., 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp., 3V4 Audio Output
POWER SUPPLY RATING	110-120 Volts AC-DC (or) 9 Volts "A" Supply & 90 Volts "B" Supply in Pack Form .12 Amp. @ 117 Volts AC (or) 62MA @ 9 Volts DC & 13MA @ 90 Volts DC
TUNING RANGE--BROADCAST	535KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use battery power, if possible. If AC power is used, use an isolation transformer when available. If not, connect a .1MFD capacitor in series with low side of the signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1R5 (V2). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If AC power is used without an isolation transformer, reduce dummy antenna to 200MMF to reduce hum modulation.
2.		Loop	1600KC	Tune to 1600KC signal	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A6, A7	"

4. With set in cabinet and wave magnet tilted approximately 30 degrees tune in a weak station near 1400KC (or use background noise) and adjust A7 for maximum sensitivity.

DIAL POINTER - With tuning gang fully closed set the right side of "55" on the dial to the low frequency index mark on on the cabinet.

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PARTS LIST AND DESCRIPTIONS

ZENITH MODEL L505F

TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ZENITH PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RTMA BASE TYPE	NOTES
V1	RF Amplifier	1U4	1U4	6AR	
V2	Converter	1R5	1R5	7AT	
V3	IF Amplifier	1U4	1U4	6AR	
V4	Det-AVC-AF Amp.	1U5	1U5	6BW	
V5	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲60	150	22-2410	AFH4-23		DO30		FP408	R1079	
B	■40	150								
C	▲20	150								
D	200	10						PT415	2TM-S5	
C2	.05	200	22-829	P288-05	DF-503			PT415	2TM-S5	
C3	10000		22-3	BPD-01	DD-1032	TM5S1	GP2-333-103	DC-511	5HK-S1	
C4	470		22-6	BPD-00047	D6-471		GP2K-471	UC-5347	5GA-T47	
C5	110		22-5	SI100						
C6	.02	200	22-1386	P288-02	DD-203	PJ2S2		PT412	2TM-S2	
C7	.1	200	22-1182	P488-02	DF-104	PJ2P1		PT401	2TM-P1	
C8	.003	600	22-5	P688-003	D6-302	PTE6D3	GP2-333-302	PT623	6TM-D3	
C9	10000		22-3	BPD-01	DD-1032	TM5S1	GP2-333-103	DC-511	5HK-S1	
C10A	5000									
B	100		*105-31	*PA-117	*PC-91		*1407-03		*103C3	
C	5000									
C11	.01	400	22-1182	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C12	10000		22-3	BPD-01	DD-1032	TM5S1	GP2-333-103	DC-511	5HK-S1	
C13	.05	200	22-829.	289ZX-05		PJ2S5		PT415	2TM-S5	

* Items C10A, C10B, C10C and R12A, R12B, R12C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	63-2832	Q13-133	AG-60-Z	BSK-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWB-2	Not Req.	US-27	Attach to R1A

RESISTORS

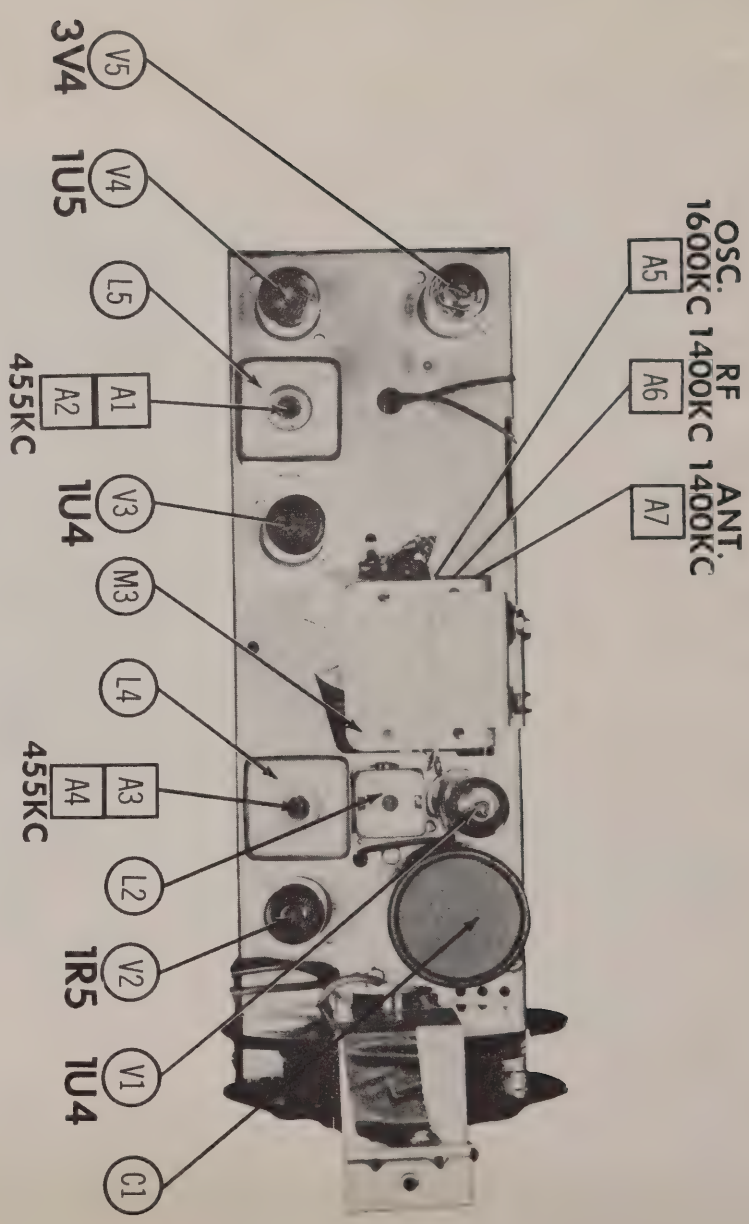
ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	NOTES
R2	1MegΩ	½	63-1912	BTS-1Meg	
R3	1MegΩ	½	63-1912	BTS-1Meg	
R4	1000Ω	½	63-1785	BTS-1000	
R5	100KΩ	½	63-1870	BTS-100K	
R6	1000Ω	½	63-1786	BTS-1000	
R7	6.8MegΩ	½	63-1947	BTS-6.8Meg	
R8	3.3Meg	½	63-1933	BTS-3.3Meg	
R9	8.2MegΩ	½	63-1950	BTS-8.2Meg	
R10	220Ω	½	63-1757	BTS-220	
R11	4.7MegΩ	½	63-1940	BTS-4.7Meg	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: ZENITH PART No.	IRC PART No.	NOTES
R12A	4.7MegΩ	½		BTS-4.7Meg	
B	1MegΩ		*105-31	BTS-1Meg	
C	2.2MegΩ			BTS-2.2Meg	
R13	1000Ω	½	63-1785	BTS-1000	
R14	22KΩ	½	63-1842	BTS-22K	
R15	680Ω	½	63-1778	BTS-680	
R16	130Ω	4	63-2839		
R17A	720Ω	10	63-2101		
B	1350Ω				
R18	100Ω	½	63-1744	BTS-100Ω	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA: ZENITH PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	10KΩ	3.5Ω	700Ω	.4Ω SEC. 2Ω	95-1338					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3.5Ω	49-732	ST-803 ① Mod.P525-V	52A21 ①	① Fabricate mounting brackets.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	1Ω		S-19724				Loop,cover & housing assy (part #S-20071). For Model L505F; Loop, cover & housing assy. (part #S-20070) for Model L505R; Loop, cover & housing assy. (part #S-19742) forModel L505Y.
L2	RF Coil	110Ω	4.8Ω	S-20014				
L3	Osc.Coil	1.5Ω	5.5Ω	S-19699	14-1074		70-Osc.*	
L4	Input IF	26Ω	26Ω	95-1132	16-6666 †	BC-368 †	1312-C1 †	
L5	Output IF	26Ω	26Ω	95-1133		BC-355 ▲	12-C6 ▲	

* Disregard tap on secondary winding.
† Drill mounting holes.
▲ Drill mounting holes, cut out center spade bolt mounting support and use adaptor plate.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					
	CURRENT	ZENITH PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	SARKES TARZIAN PART No.
M1	.061ADC	212-5	NB5	5M4	1003A	6S75	75

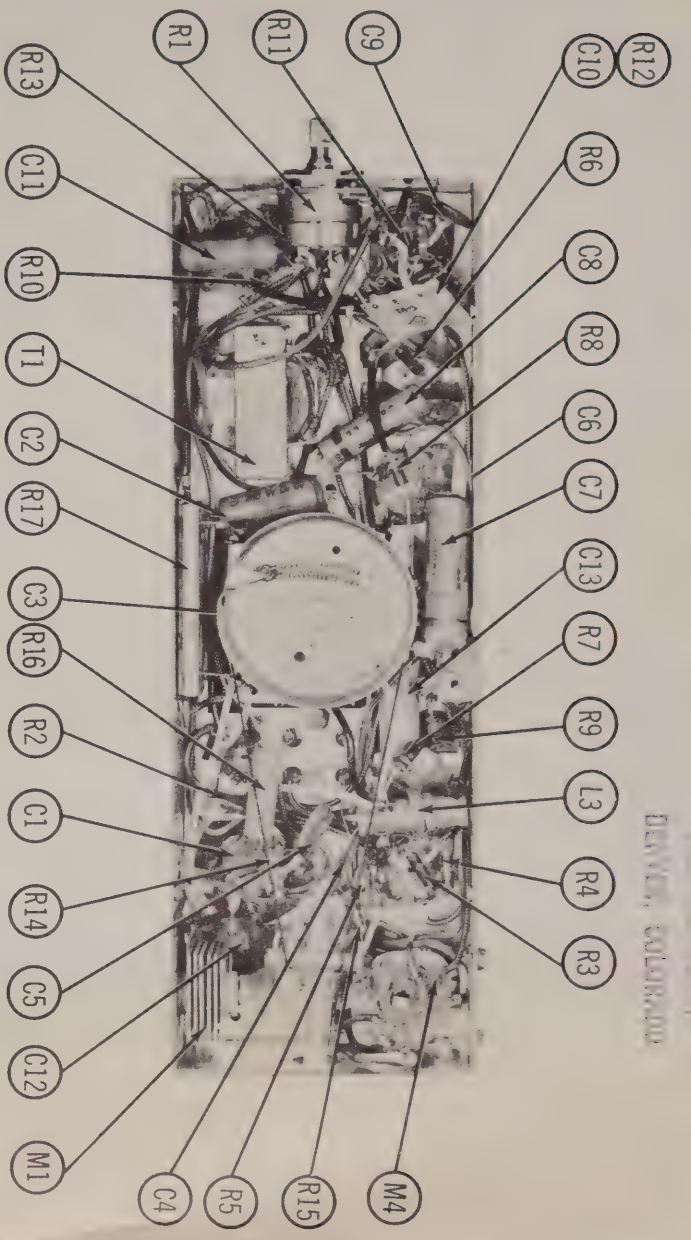
BATTERIES

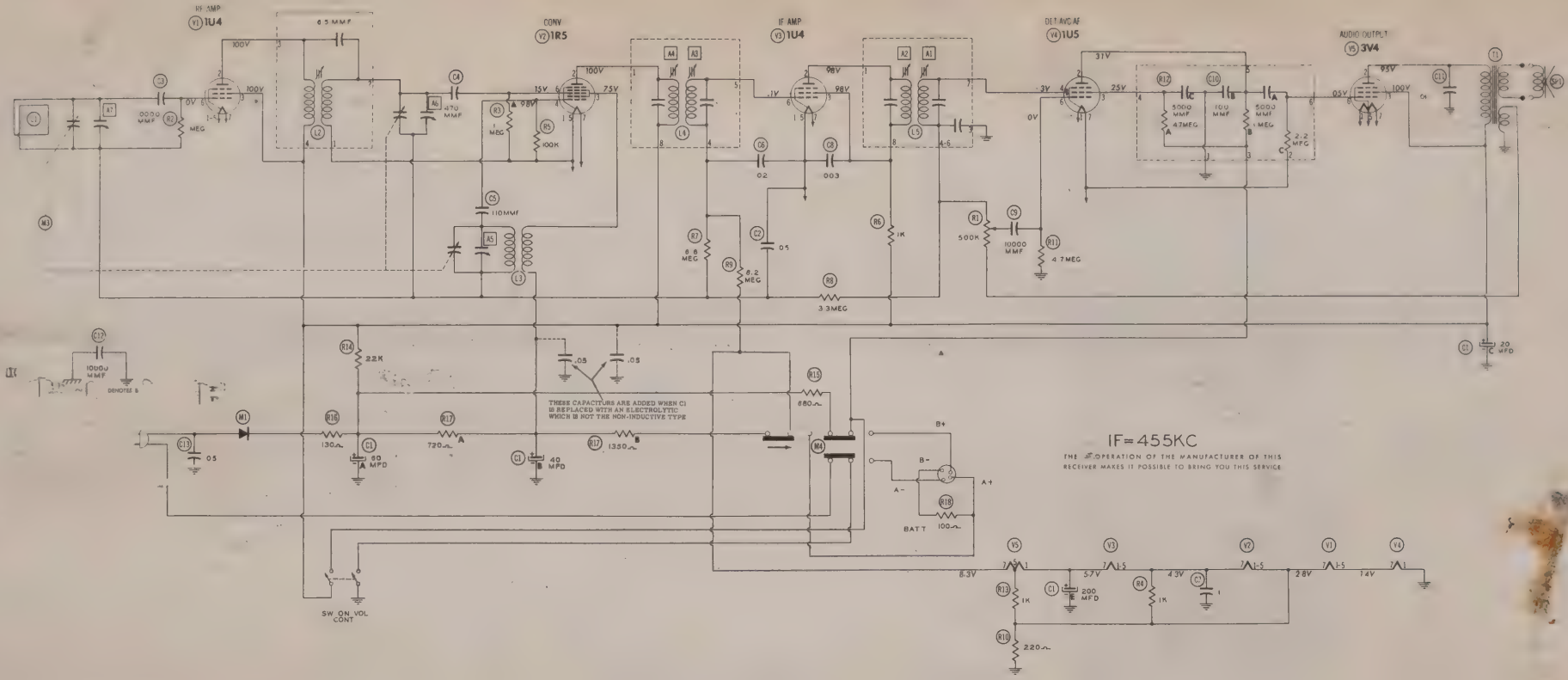
ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	9V "A" 90V "B"	Z962						TZ60P	

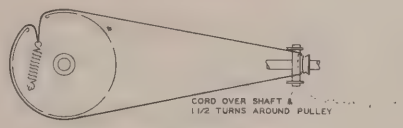
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Tuning Cap.	22-2455	24-405MMF, 24-405MMF, 37-175MMF
M4	Switch	85-520	Power Selector
	Cabinet	14-1549	Model L505F
	Cabinet	14-1548	Model L505R
	Cabinet	14-1547	Model L505Y
	Bottom Cover	S-20066	Includes bushing
	Handle Assy.	S-20073	Model L505F
	Handle Assy.	S-20072	Model L505R
	Handle Assy.	S-19895	Model L505Y
	Handle Housing	43-222	(2 Used)
	Grille	138-64	
	Escutcheon	57-1889	
	Dial	26-497	Model L505F
	Dial	26-496	Model L505R
	Dial	26-493	Model L505Y
	Knob	46-1162	Off/On/Volume, Tuning Model L505F (2used)
	Knob	46-1161	Off/On/Volume, Tuning Model L505R (2 used)
	Knob	46-1106	Off/On/Volume, Tuning Model L505Y (2 used)

CHASSIS—BOTTOM VIEW







DIAL CORD DRIVE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	*	†920Ω	†810Ω	3Meg	*	4Meg.	*
V 2	1R5	*	†825Ω	†850Ω	100KΩ	*	1Meg	*
V 3	1U4	*	†1. 8KΩ	†1. 8KΩ	INF	*	4. 6Meg	*
V 4	1U5	*	†1Meg	†4. 7Meg	485KΩ	INF	4. 7Meg	*
V 5	3V4	*	†1. 5KΩ	†810Ω	*	*	2. 2Meg	*

ALL MEASUREMENTS TAKEN WITH M4 IN AC OPERATION POSITION
† MEASURED FROM OUTPUT OF M1
▲ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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224-18

1- DC voltage measurements are at 20,000 ohms per volt, AC voltages measured at 1000 ohms per volt.
2- Socket connections are shown as bottom views.
3- Measured values are from socket pin to common negative.
4- Line voltage maintained at 117 volts for voltage readings.
5- Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6- Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT® Folder with CIRCUITRACE™

RCA VICTOR CHASSIS
CTC16A/B/E/F/L/AB/AC/AF/AH

RCA VICTOR CHASSIS
CTC16A/B/E/F/L/AB/AC/AF/AH

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

RCA VICTOR CHASSIS
CTC16A/B/E/F/L/AB/AC/AF/AH

MODEL GF707FR

SET 736 FOLDER 4

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DATE 1-65 SET 736 FOLDER 4

PHOTOFACT® Folder with CIRCUITRACE®

RCA VICTOR CHASSIS CTC16A/B/E/F/L/AB/AC/AF/AH

RCA VICTOR CHASSIS CTC16A/B/E/F/L/AB/AC/AF/AH

MODEL GF707FR

IMPORTANT FILING NOTICE

Some models covered by this PHOTOFACT Folder employ chassis in addition to the TV chassis. PHOTOFACT Folders covering these additional chassis are packaged immediately behind this Folder and should be filed with this Folder in the yellow filing jacket provided. For specific coverage see index below.

INDEX

Remote Control Receiver CTP10E, Transmitter CRK6A ... SET 736, FOLDER 4-A

Power Amp Chassis RS-203C ..... SET 736, FOLDER 4-B

RCA VICTOR CHASSIS CTC16A/B/E/F/L/AB/AC/AF/AH

TRADE NAME	RCA Victor Models	Chassis
	FF567E/M/W/Y, GF611M/W	CTC16A
	FF567MR/WR	CTC16B
	GF631M/W/Y, GF641M/W, GF681M/W, GF701W, GF703L, GF705V/W, GF707C/F/V, GF711M/W, GF713M	CTC16E
	GF631MR/WR/YR, GF701WR, GF703LR, GF705VR/WR, GF707FR/VR, GF711MR/WR	CTC16F
	GF731M/W, GF737W, GF739C/L, GF741V/W, GF743F/V	CTC16L
	HF861M, HF863L, HF865V/W, HF867F/V	CTC16AB
	HF861WR, HF863LR, HF865VR/WR, HF867FR/VR	CTC16AC
	HF853M/W, HF854M/W	CTC16AF
	HF857M/W	CTC16AH

SUPPLIER	For current address, see Master Index.
TYPE SET	Color Television Receiver
TUBES	VHF: Twenty-Seven, UHF: One Transistor
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 328 Watts, 3.33 Amps. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

FOR TV COMBINATION MODELS USING AM-FM RADIO SEE FOLDER 7 IN THIS SET

SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE OR FUSE DEVICE

A 3" length of fuse wire is used for filament protection. (For location, see M1 in photo "Chassis - Bottom View".)

A Circuit Breaker is used for low voltage power supply protection and may be reset by depressing the reset button. (See "Tube Placement Chart" for location.)

VHF OSCILLATOR ADJUSTMENT

For VHF Tuner oscillator adjustment, see "Oscillator Adjustment" under VHF Tuner Alignment.

AGC

The AGC may be varied by means of an AGC Control. (See "Tube Placement Chart" for location.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the horizontal hold is accomplished by the proper setting of the Horiz. Oscillator Coil (Waveform Slug, B1). (See "Tube Placement Chart" for location.)

HORIZONTAL LINEARITY

The linearity may be varied by a Horizontal Efficiency Coil.

CENTERING

Horizontal and Vertical centering is accomplished by 2 controls located at rear of chassis.

FOCUS

The focus may be varied by means of a Focus Coil. (See "Tube Placement Chart" for location.)

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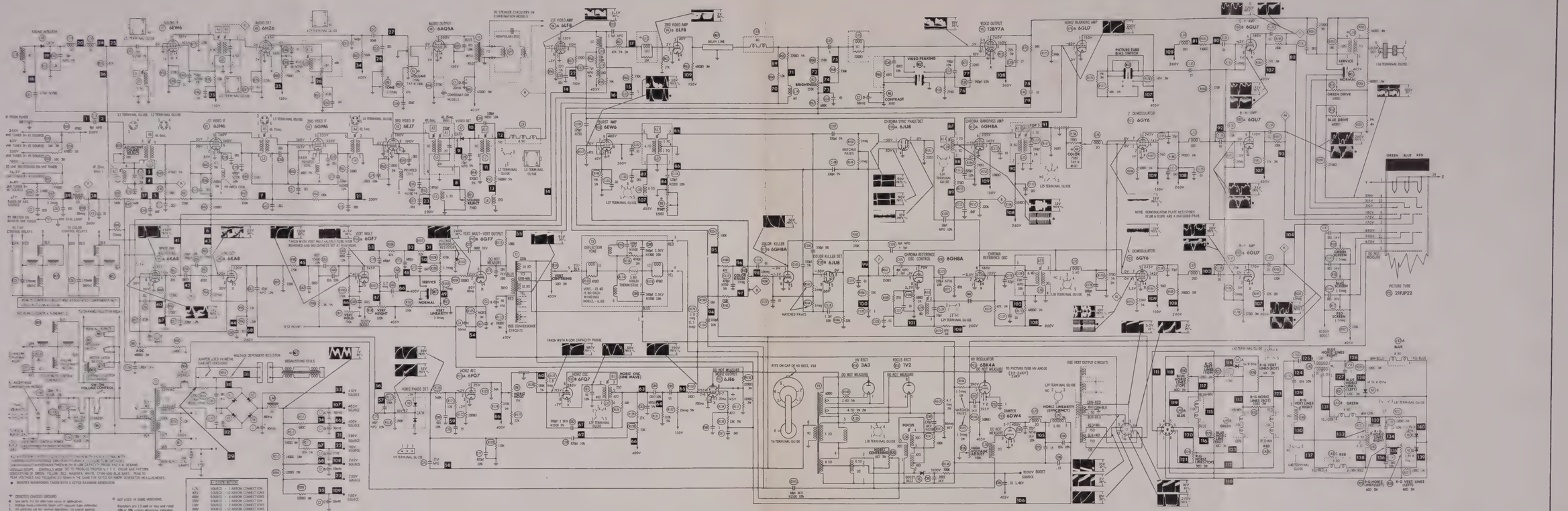
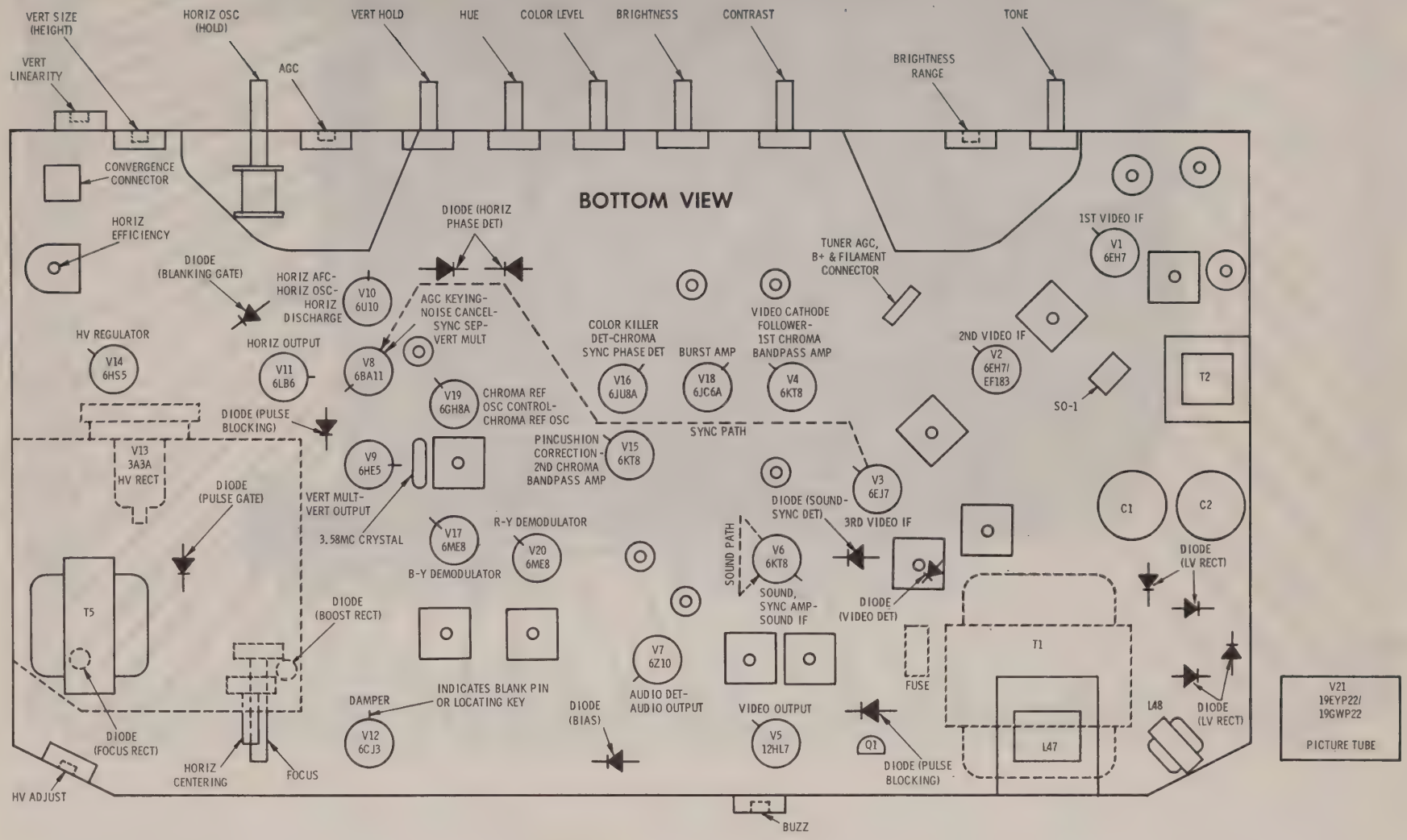
SET 736 FOLDER 4



RCA VICTOR CHASSIS
CTC16A/B/E/F/L/AB/AC/AF/AH

TUBE PLACEMENT CHART



CHASSIS - BOTTOM VIEW

CONVERGENCE ADJUSTMENTS

Step	Control	Use to Converge (or Straighten)	Remarks
1.			Perform Center Dot Convergence using convergence magnets. See Fig. A.
2.	R-G Vertical Lines, Top	Red and Green Vertical bars at top of screen.	Touch up both controls for best convergence from top to bottom along vertical center line (Fig. B).
3.	R-G Vertical Lines, Bottom	Red and Green Vertical bars at bottom of screen.	
4.	R-G Horizontal Lines, Top	Red and Green Horizontal bars at top of screen.	Touch up both controls for best convergence of horizontal bars along vertical center line (Fig. B).
5.	R-G Horizontal Lines, Bottom	Red and Green Horizontal bars at bottom of screen.	
6.	Blue Horizontal Lines, Top	Blue Horizontal bars at top of screen.	Touch up both controls for best convergence of horizontal bars along vertical center line (Fig. C).
7.	Blue Horizontal Lines, Bottom	Blue Horizontal bars at bottom of screen.	
8.			Perform Center Dot Static Convergence (Fig. A).
9.	Blue Horizontal Lines, Right	Blue Horizontal bars at right side of screen.	Touch up both controls for best convergence along horizontal center line (Fig. D).
10.	Blue Horizontal Lines, Left	Blue Horizontal bars at left side of screen.	
11.	R-G Vertical Lines, Right	Red and Green Vertical bars at right side of screen.	(Fig. E)
12.	R-G Horizontal Lines, Right	Red and Green Horizontal bars at right side of screen.	Use control to converge blue bar with red and green bars on right side of screen (Fig. E).
13.	R-G Vertical Lines, Left	Red and Green Vertical bars at left side of screen.	(Fig. E)
14.	R-G Horizontal Lines, Left	Red and Green Horizontal bars at left side of screen.	Use control to converge blue bar with red and green bars at left side of screen (Fig. E).

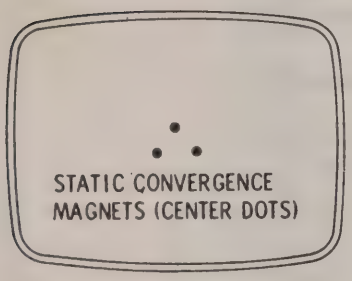


FIG. A

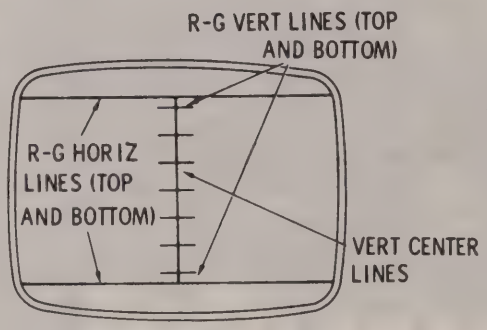


FIG. B
(RED AND GREEN ONLY)

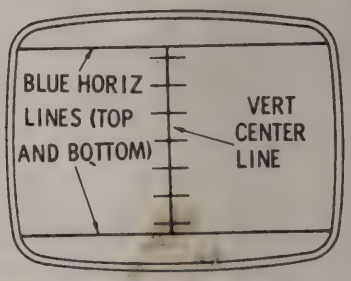


FIG. C
(BLUE BARS)

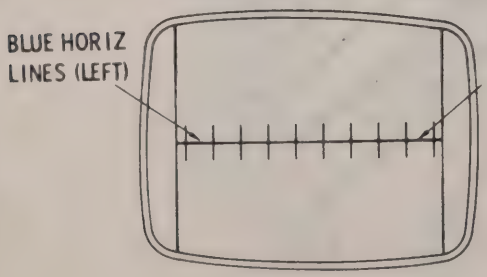


FIG. D
(BLUE BARS

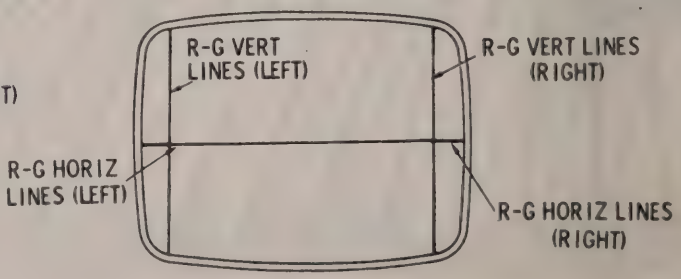
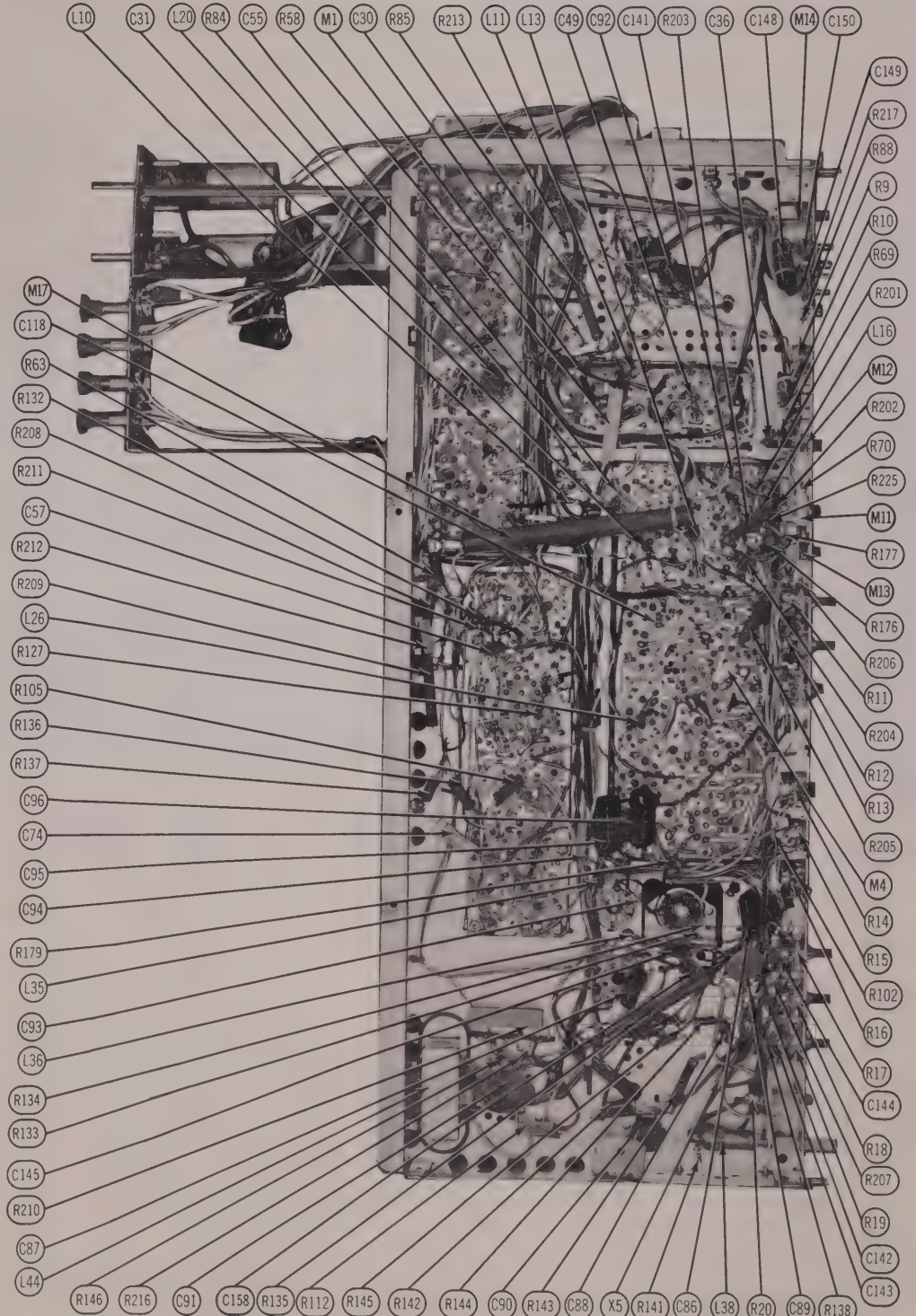
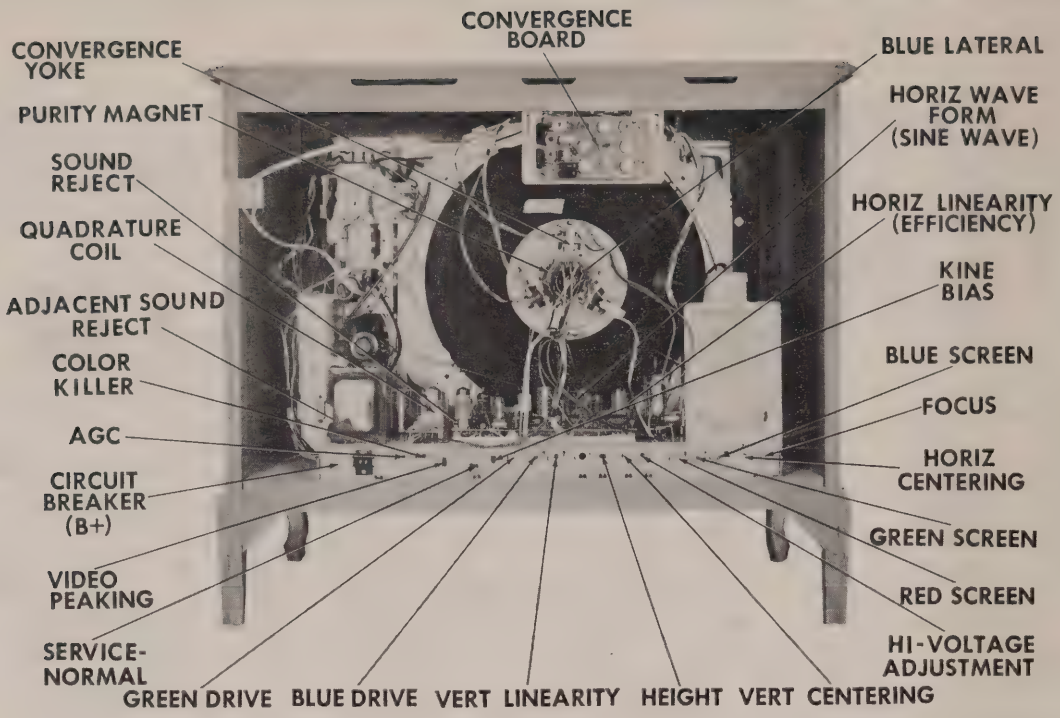


FIG. E



CHASSIS — BOTTOM VIEW

RCA VICTOR CHASSIS
CTC16A/B/E/F/L/AB/AC/AF/AH



CABINET—REAR VIEW

DISASSEMBLY INSTRUCTIONS

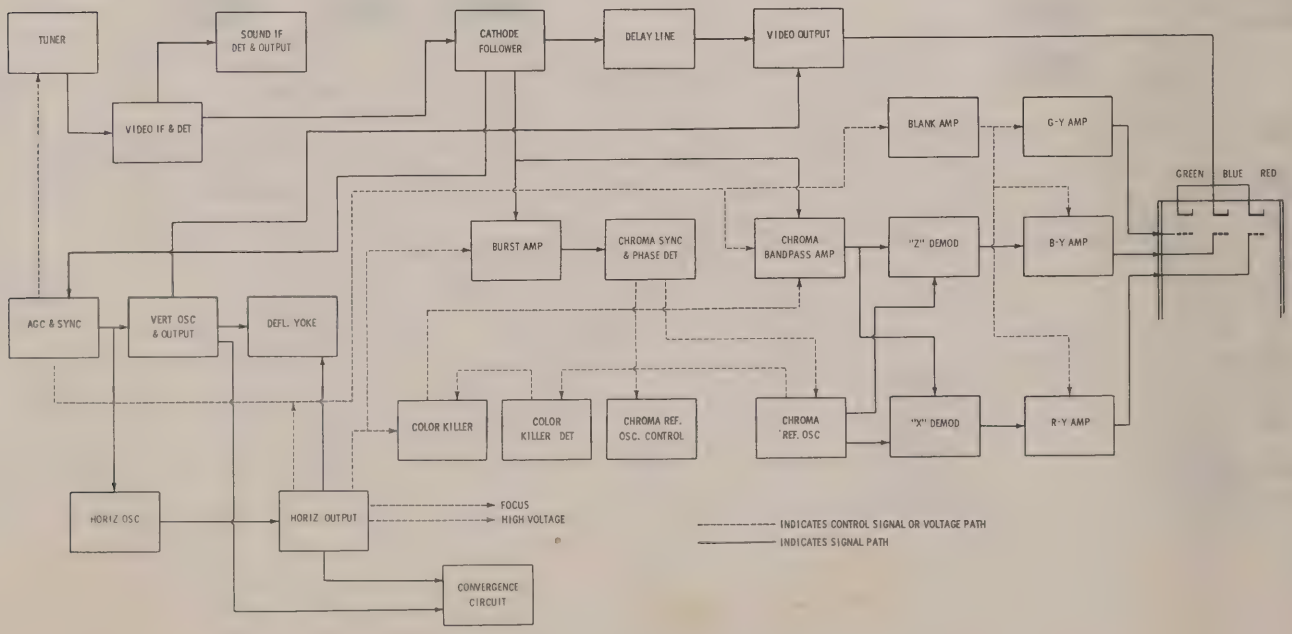
CHASSIS REMOVAL

Service Note: Two screws adjacent to interlock are used to hold tuner for servicing.

1. Remove rear cover (5 screws and 2 clips). Remove 8 knobs from front.
2. Disconnect degaussing coils, speaker, picture tube socket, yoke, convergence board, and high voltage lead.
3. Loosen 4 screws holding tuner assembly and lift assembly from screws.
4. Remove VHF and UHF Pilot Light assemblies by pushing forward.
5. Remove color indication light and pull remote microphone out of rubber mounting.
6. Remove 4 bolts from bottom of chassis and remove chassis.

PICTURE TUBE REMOVAL

1. Remove chassis and lay cabinet face down on a soft protective surface.
2. Remove degaussing assembly held by 4 screws.
3. Remove 8 screws from corner brackets and lift picture tube and mounting band assembly from cabinet.
4. Place band on a soft surface, remove retaining screws, and remove band assembly from picture tube.



BLOCK DIAGRAM

PHOTOFACT® Folder with CIRCUITRACE®

RCA VICTOR REMOTE RECEIVER CTP10E, TRANSMITTER CRK6A

IMPORTANT FILING NOTICE

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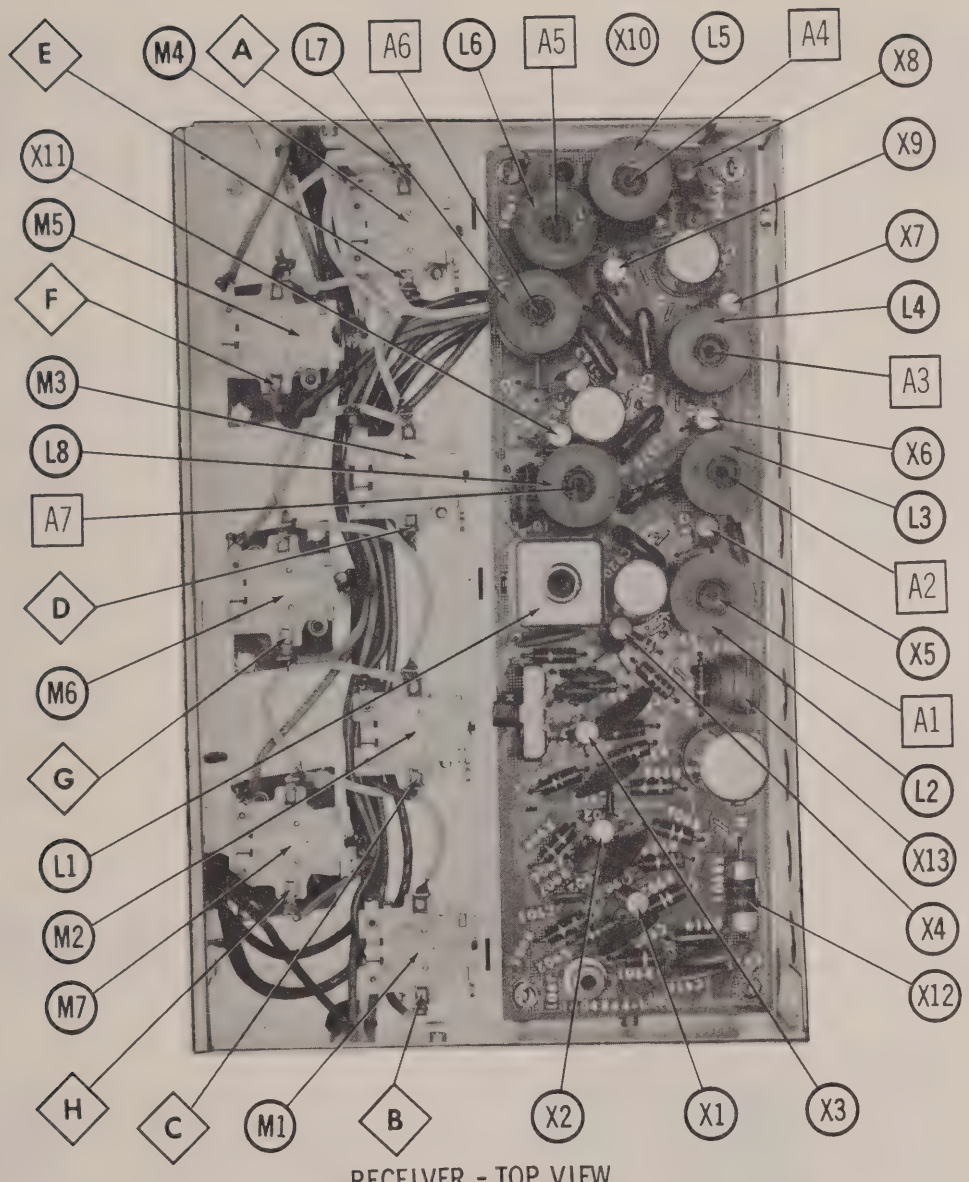
RCA VICTOR REMOTE
RECEIVER CTP10E, TRANSMITTER CRK6A



RECEIVER - TOP VIEW

RCA VICTOR REMOTE
RECEIVER CTP10E, TRANSMITTER CRK6A

TRADE NAME	RCA Victor Receiver CTP10E, Transmitter CRK6A
SUPPLIER	For current address, see Master Index.
TYPE SET	Remote Control Receiver and Transmitter
TRANSISTORS	Remote Control Receiver - Eleven, Remote Control Transmitter - One
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 7 Watts, .065 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed.

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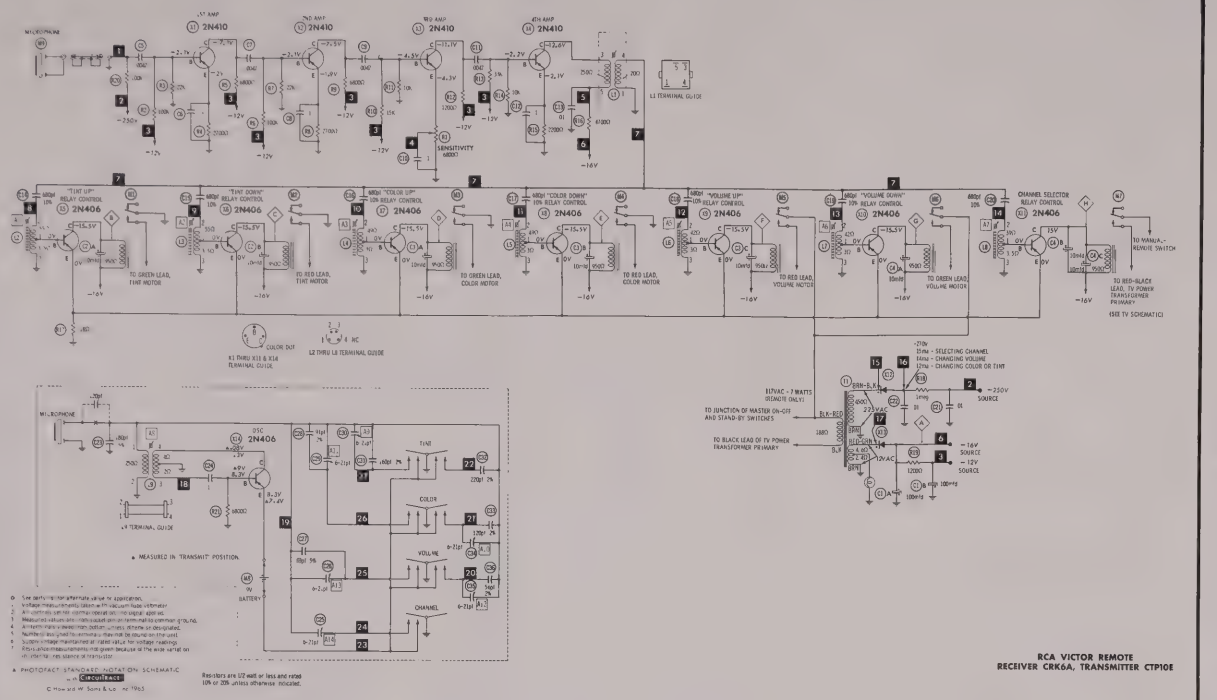
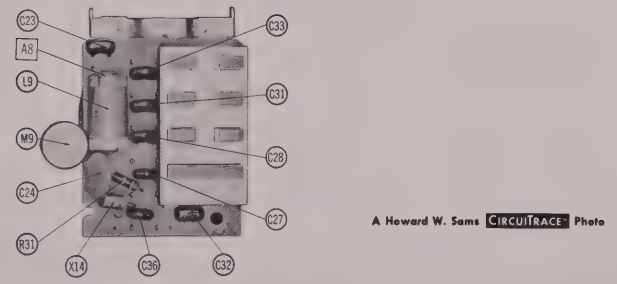
DATE 1-65 SET 736 FOLDER 4-A

SET 736 FOLDER 4-A



REMOTE CONTROL RECEIVER CTP10A, TRANSMITTER CRK6A



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TRANSMITTER

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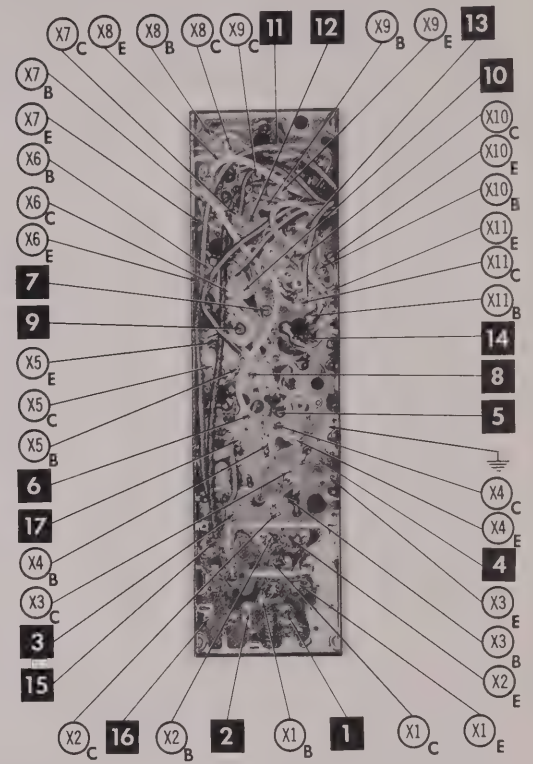
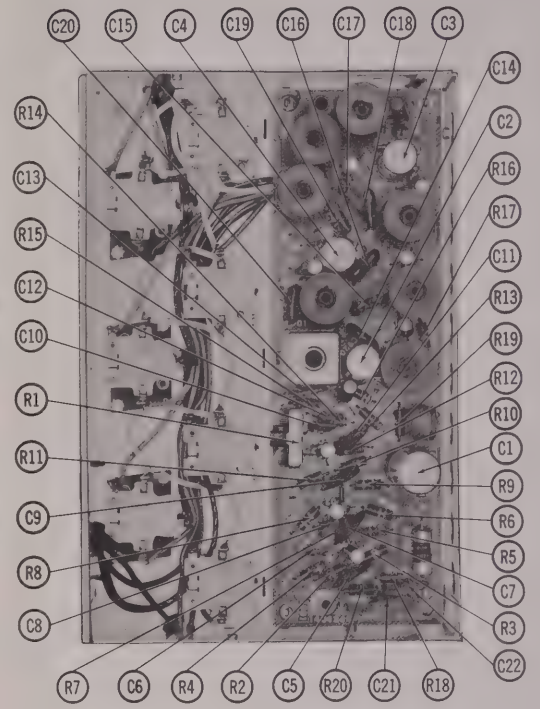


B-BASE C-COLLECTOR E-EMITTER



RECEIVER

PHOTOFACT® Folder

RCA VICTOR AMP
CHASSIS RS-203C

IMPORTANT FILING NOTICE

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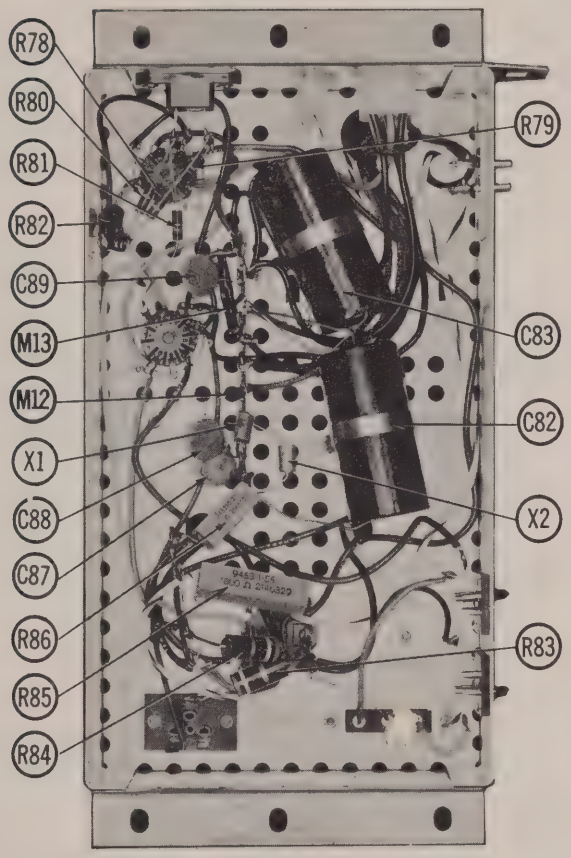
RCA VICTOR AMP
CHASSIS RS-203C



RCA VICTOR AMP
CHASSIS RS-203C

TRADE NAME	RCA Victor
SUPPLIER	For current address, see Master Index.
TYPE SET	Stereo Power Amplifier
TUBES	Two
POWER SUPPLY	110-120 Volts AC, 60 Cycle

SET 736 FOLDER 4-B

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed.

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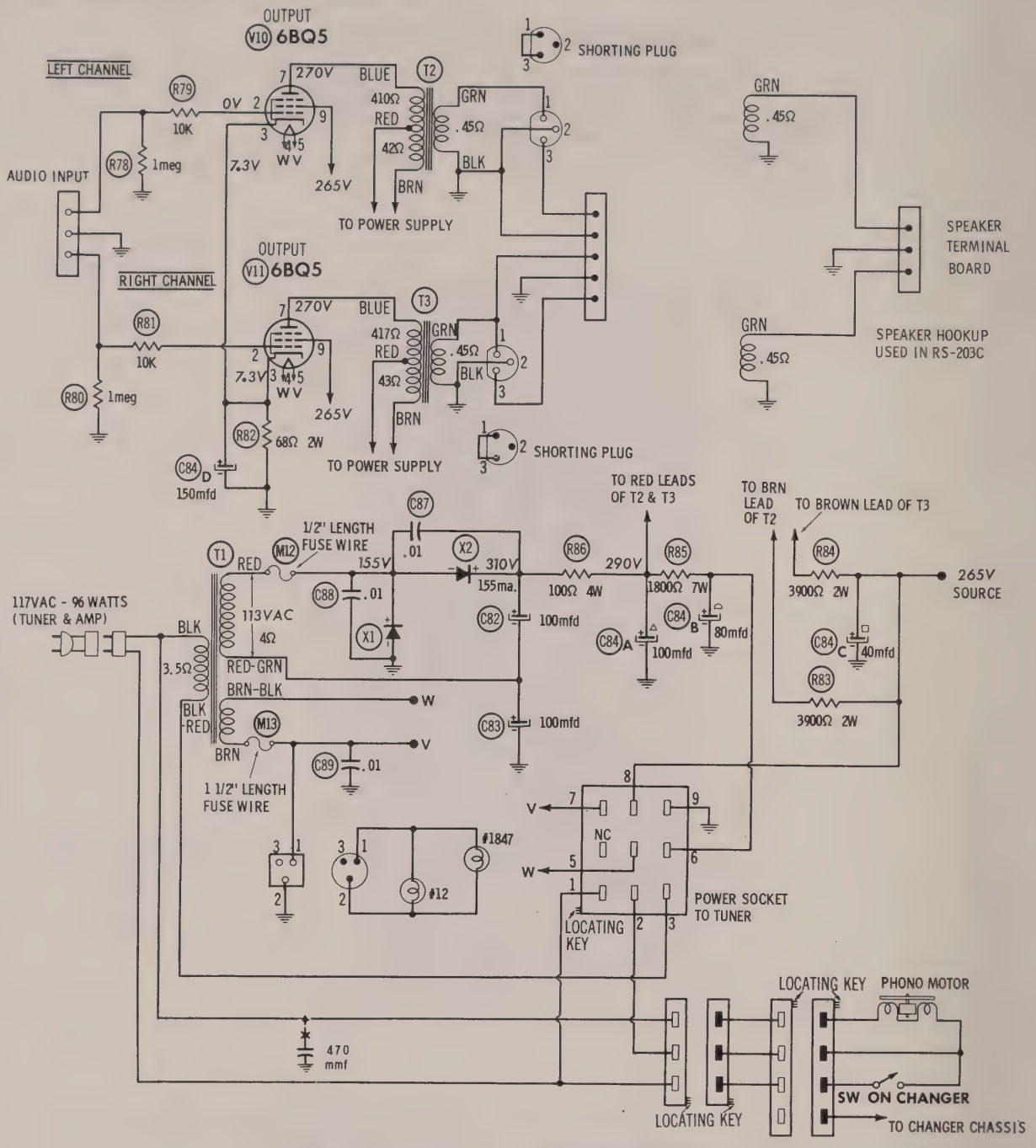
DATE 1-65 SET 736 FOLDER 4-B



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V10	6BQ5	NC	340K	68Ω	FIL	FIL	NC	† 450Ω	NC	† 2100Ω
V11	6BQ5	NC	380K	68Ω	FIL	FIL	NC	† 450Ω	NC	† 2100Ω

† MEASURED FROM OUTPUT OF X2. NC NO CONNECTION

⊖ See parts list for alternate value or application.

1. Voltage measurements taken with vacuum tube voltmeter.
2. All controls set for normal operation, no signal applied.
3. Measured values are from socket pin or terminal to common ground.
4. All terminals viewed from bottom unless otherwise designated.
5. Numbers assigned to terminals may not be found on the unit.
6. Supply voltage maintained at rated value for voltage readings.

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RCA VICTOR
AMP CHASSIS RS-203B/C

PARTS LIST AND DESCRIPTION

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

TUBES

◆ AMPEREX ◆ GENERAL ELECTRIC ◆ RCA ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V10	Output	6BQ5

ITEM No.	USE	TYPE
V11	Output	6BQ5

POWER RECTIFIERS

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS		
			MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.
X1	.155A	106379 (34174)	1N3194 ①	1N1764 or 1N2863 or 1N3195	40H or F-4
X2	.155A	106379 (34174)	1N3194 ①	1N1764 or 1N2863 or 1N3195	40H or F-4

① A Dual Unit, VB600, may be used instead of two single units.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C82	100	200	111399 (1441070-1)	PRS1595	BR100-250	QT1-24.1	TD-100-200	TC1265	TVA-1445
C83	100	200	111399 (1441070-1)	PRS1595	BR100-250	QT1-24.1	TD-100-200	TC1265	TVA-1445
C84A	▲ 100	350	111400 (972187-23)	AFHS-4-57-91	D0042	XC3-41	TMQ-4304	FP333.86	TVLS3646.5 *
B	▲ 80	350			NLW150-15	MT1-23	MLV150-15	TT15X150	TE-1163
C	■ 40	350							
D	150	15							
C85	8	10NP	102847 (943319)		PRS6200	BBR8-150	NPQT-3	TCN108	TVANS-1112*
C86	8	10NP	102847 (943319)		PRS7315	BBR8-150	NPQT-3	TCN108	TVANS-1112*

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C87	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C88	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C89	.01		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	REMARKS			IRC PART No.	WORKMAN PART No.	REMARKS
R85	1800Ω 7W	PW7-1800	7W-SQ-1800		R86	100Ω 4W		4G-100	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	RCA Victor PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC ② .9A	113VAC ② .155A DC	6.3VAC ② 4.5A	111401 (961795-7)	P-4082 ①				①Drill new mounting hole(s).

PARTS LIST AND DESCRIPTION (CONTINUED)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	RCA Victor PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	6800Ω Tap @ 12%	3-4Ω	111395 (962628-11)					
T3	6800Ω Tap @ 12%	3-4Ω	111395 (962628-12)					

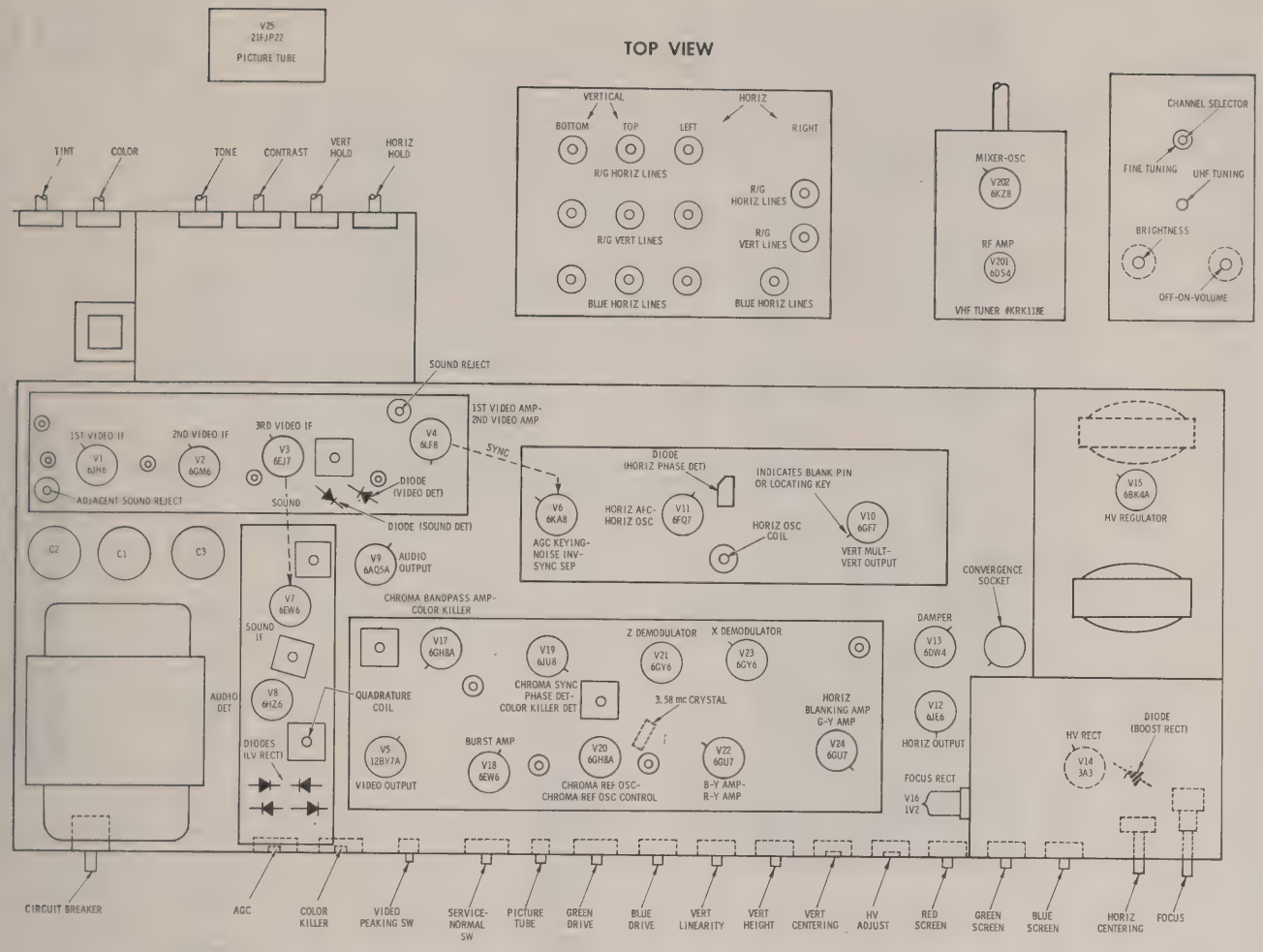
FUSES

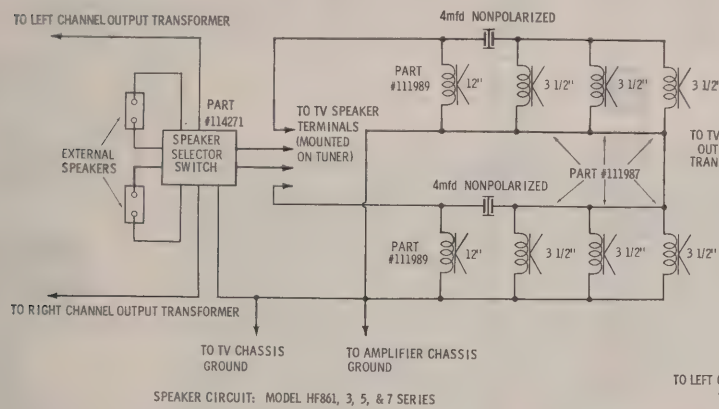
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA Victor PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M12	½" length	fuse wire 105252						
M13	1½" length	fuse wire						

WIRING DATA

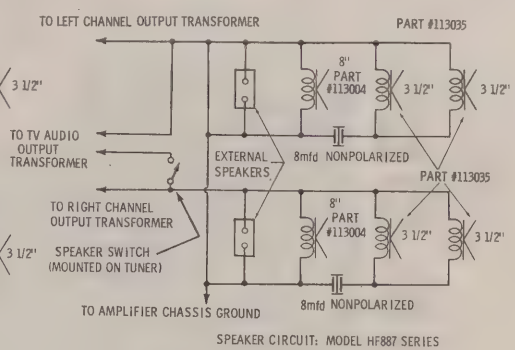
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Power Cord	Use BELDEN No.	17106 (Plastic) or 17126 (Rubber) - 6 Ft. 17109 (Plastic) or 17129 (Rubber) - 9 Ft.
Power Cord (Interlock Type)	Use BELDEN No.	8874 (Rubber) or 8895 (Plastic)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No.	8401 or 8421
Phono Pick-up Arm Cable	Use BELDEN No.	8430 (Two Conductor-Unshielded) 8429 (Two Conductor-Shielded) 8419 (Three Conductor-Shielded)

TUBE PLACEMENT CHART

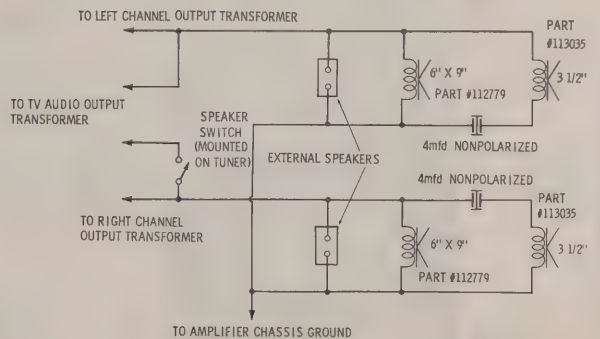




SPEAKER CIRCUIT: MODEL HF861, 3, 5, & 7 SERIES



SPEAKER CIRCUIT: MODEL HF887 SERIES



SPEAKER CIRCUIT: MODEL HF853 & HF854 SERIES

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ALTERNATE SPEAKER CIRCUIT
SET 736 FOLDER 4

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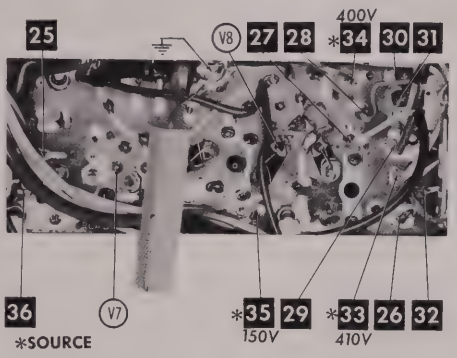
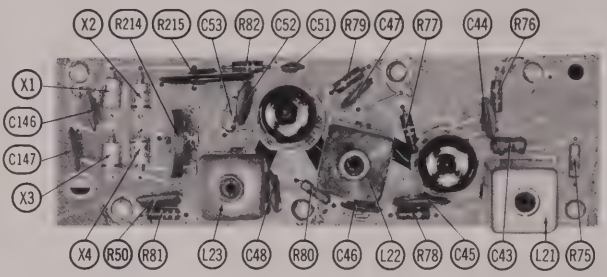
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED





SOUND IF PRINTED BOARD

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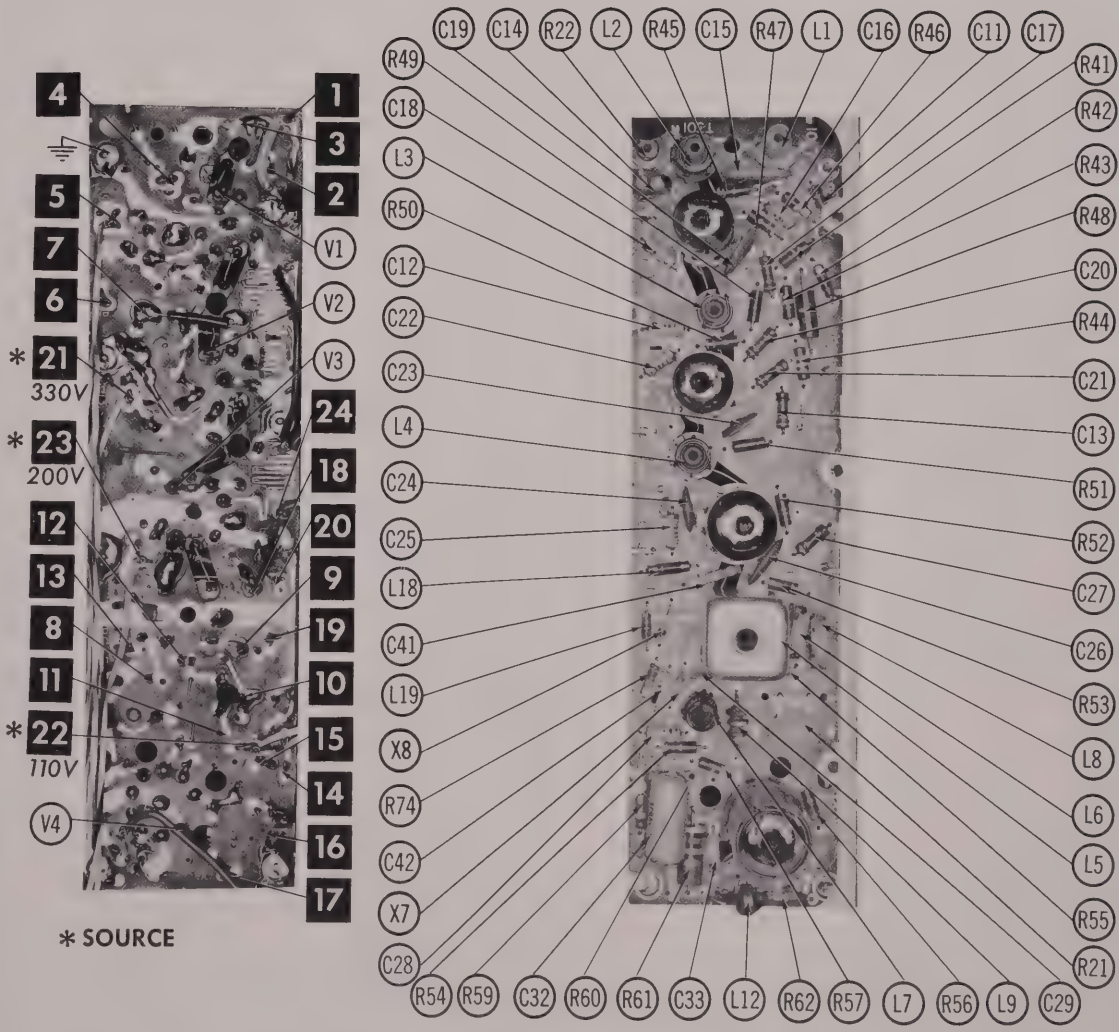
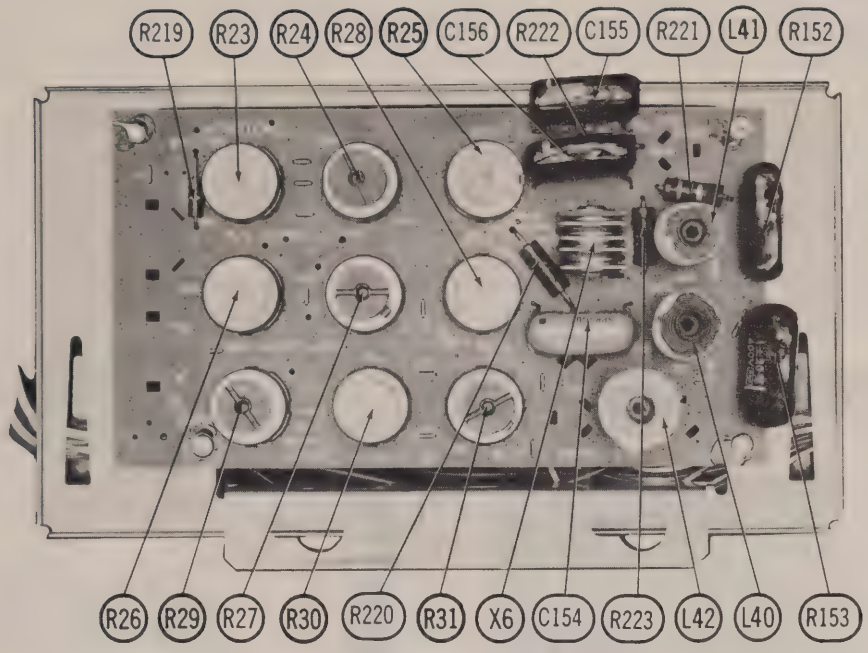
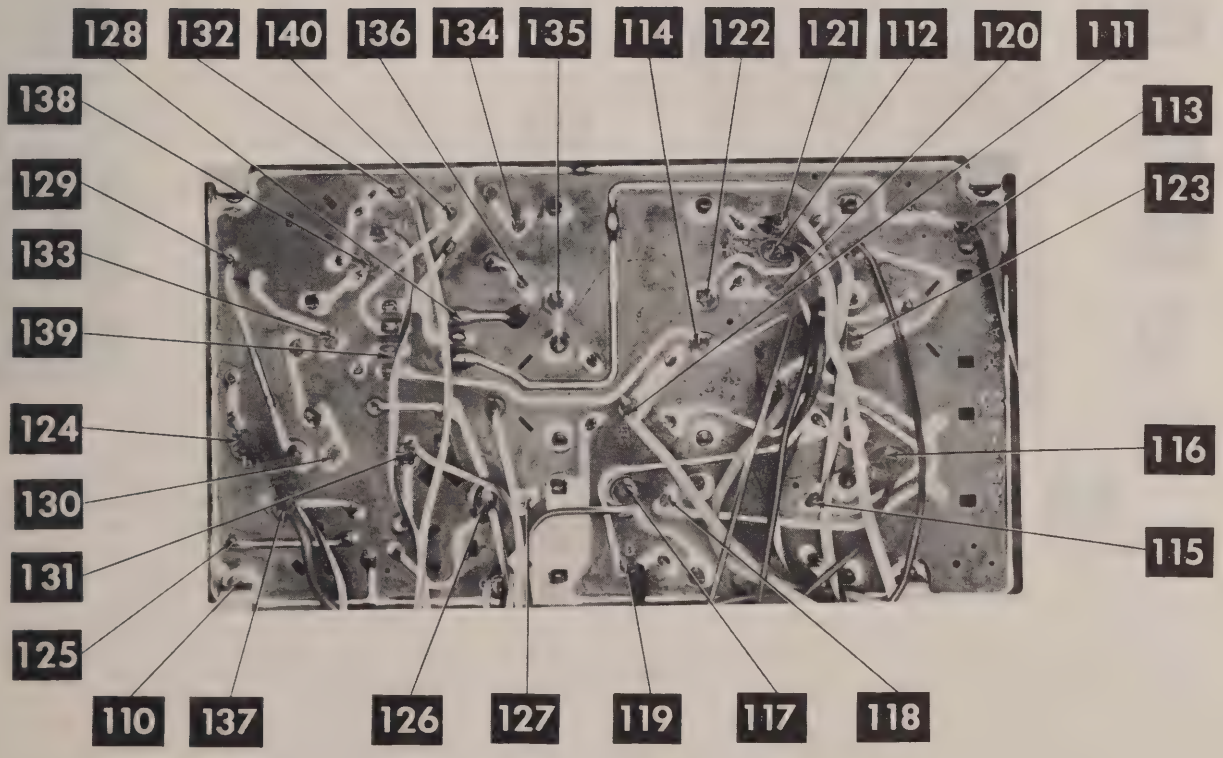
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



VIDEO IF PRINTED BOARD





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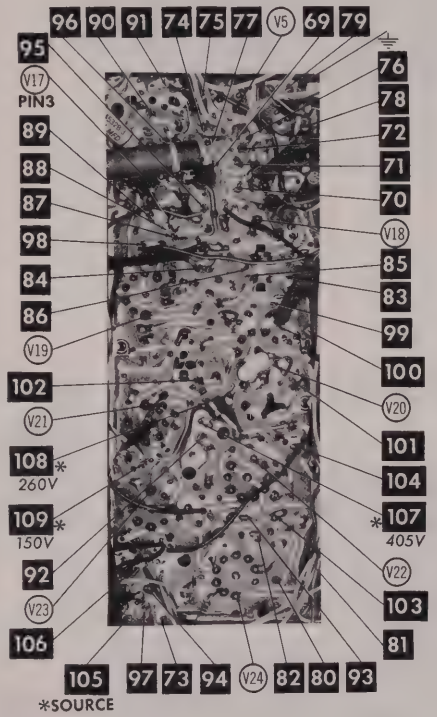
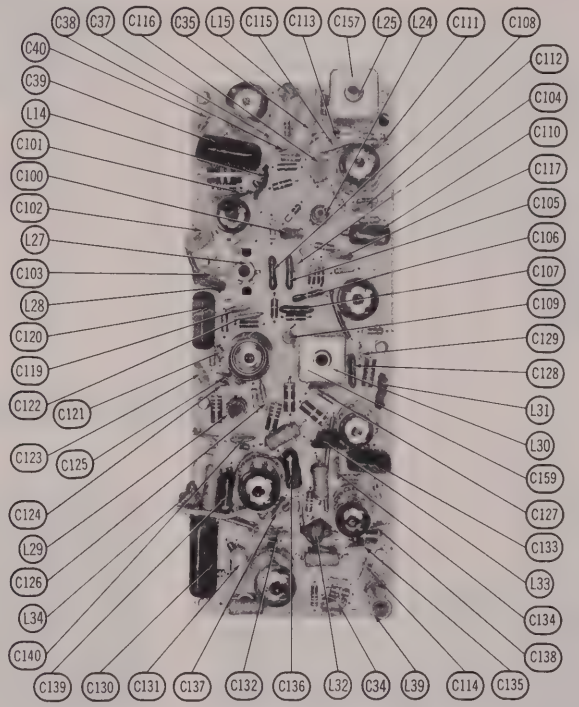
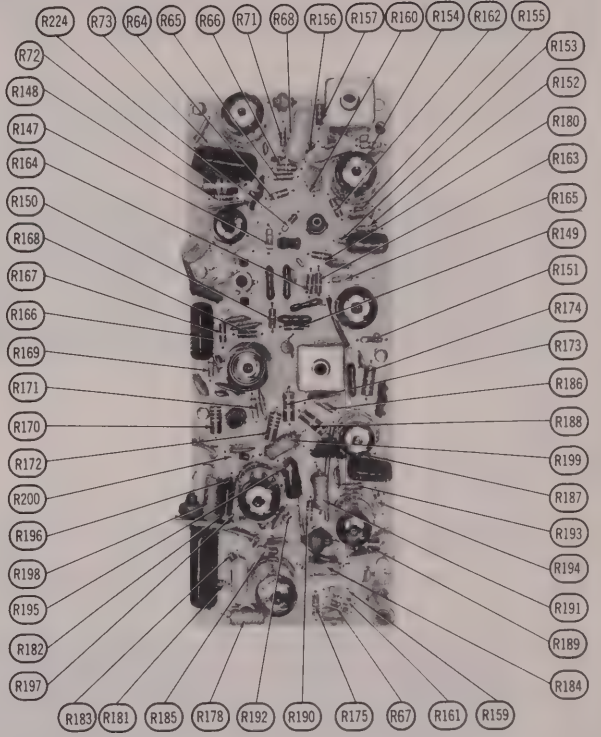
CONVERGENCE PANEL

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED







COLOR CIRCUIT PRINTED BOARD

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect:
A 0-500MA meter in series with cathode lead of horizontal output tube.
A .47mfd capacitor across meter.
A VTVM thru a high voltage probe to picture tube anode connector, point (H) to ground.
A short across horizontal oscillator cathode coil (pin 8 to ground).

Tune in a TV station and set all controls for normal operation. Adjust the Horizontal Hold Control until the picture "floats" with the blanking bars vertical. Remove the short from the Horizontal Oscillator Cathode and adjust B1 until the picture "floats" horizontally. Remove the short from point (H). Adjust the Horizontal Linearity Coil for MINIMUM current in the horizontal output tube (should not exceed 210MA).

Adjust the High Voltage Control for 24KV on picture tube anode with normal brightness. Check voltage drop across R146 with VOM. The MINIMUM acceptable voltage drop should not be less than .85 volts with the acceptable range between 1.0 and 1.4 volts. Horizontal Linearity (Efficiency) Coil may be adjusted $\frac{1}{2}$ turn clockwise if voltage drop is less than .85 volts. The Horizontal Output Tube current must not exceed 210MA under these conditions.

If foldover occurs in picture, adjust Horizontal Linearity clockwise to eliminate foldover while checking to make sure horizontal output current does not exceed 210MA.

Adjust Focus, Height, and Vertical Linearity Controls.

AGC ADJUSTMENT

Tune in a strong TV station and advance the AGC Control until instability appears in the picture (pulling, jitter, overload, etc.). Reduce the control to the point just below the instability and check all available stations for proper AGC action.

COLOR AFC ALIGNMENT

Set the Killer Threshold Control to fully counterclockwise. Set the Tint Control to the center of its range.

Connect a color bar generator to the antenna terminals. Adjust the receiver for normal color reception. Short pin 1 of Burst Amp., V18, to ground.

Connect DC probe of VTVM thru 470K to pin 1 of Phase Detector, V19. Adjust A15 for maximum deflection on VTVM. If no reading is obtained, oscillator is not operating. Adjust A16 to start oscillator, then adjust A15 for maximum. Remove the short from pin 1 of Burst Amp. Adjust A17 for maximum deflection on VTVM. Make sure the oscillator is running and locked in.

Short point (J) to ground. Remove VTVM. Adjust A16 until color bars stand still or drift slowly. Remove the short from point (J) and check to see that the color bars will "sync" with a low level input signal. If necessary, retouch A16 for best hold.

COLOR AFC ALIGNMENT Continued

Connect the Vertical Input of a Scope to point (K). Check for proper waveform with the color bar generator being used. See waveform on schematic for pattern obtained from a standard NTSC signal. Check the range of the Tint Control. The bars should move 30° either side of proper signal. If necessary, retouch A17 for proper range of control.

Check for proper waveform at G-Y and B-Y outputs (points (L) and (M). Tune in a weak signal, or reduce the signal at the antenna terminals to obtain a snowy picture. Adjust the Killer Threshold Control to eliminate the color in the snow. Check with a color signal to make sure the killer is not eliminating picture coloring.

PURITY ADJUSTMENTS

Perform step one of Convergence Adjustments. If the picture tube appears to be magnetized, use a degaussing coil to demagnetize tube and mounting brackets.

If TV is equipped with an automatic degaussing coil, degaussing occurs between the time the receiver is turned on and before the high voltage appears. Shunt points (L) and (M) to ground. Loosen the deflection yoke and move it rearward until it is against the convergence yoke assembly.

Adjust the tabs on the purity magnet, and rotate the assembly until a red spot appears at the center of the picture tube. Slide the deflection yoke forward to obtain a uniform red over entire picture tube face. A low power microscope is useful to observe the beam landings.

GRAY SCALE ADJUSTMENTS

Tune in a black and white picture or a color picture with the Color Control set to MINIMUM. Switch the Kine bias switch to the "Up" position. Turn the red, blue and green screen controls fully counterclockwise. Move the "Normal-Service" switch to "Service". Advance the screen controls one at a time until each produces a barely visible line on the screen.

If one or more controls fail to produce a line, change the Kine bias switch to the center or possible "Down" position and begin again. Return the Normal-Service switch to "Normal". Adjust the blue and green drive controls to eliminate coloring in the dark and bright areas of the picture.

CONVERGENCE ADJUSTMENTS

Step	Control	Use to Converge (or straighten)	Remarks
1.			Perform Center Dot Convergence using convergence magnets. If more range is needed, reverse magnet holder in clip. See Fig. A.
2.	R-G Vert. Lines, Top	Red and Green Vertical bars at top of screen.	Touch up both controls for best convergence from top to bottom along Vertical center line (Fig. B).
3.	R-G Vert. Lines, Bottom	Red and Green Vertical bars at bottom of screen.	
4.	R-G Horiz. Lines, Top	Red and Green Horizontal bars at top of screen.	Touch up both controls for best convergence of horizontal bars along Vertical center line (Fig. B).
5.	R-G Horiz. Lines, Bottom	Red and Green Horizontal bars at bottom of screen.	
6.	Blue Horiz. Lines, Top	Blue Horizontal bars at top of screen.	Touch up both controls for best convergence of horizontal bars along Vertical center line (Fig. C).
7.	Blue Horiz. Lines, Bottom	Blue Horizontal bars at bottom of screen.	
8.			Perform Center Dot Static Convergence (Fig. A).
9.	Blue Horiz. Lines, Right	Blue Horizontal bars at right side of screen.	Touch up both controls for best convergence along horizontal center line (Fig. D).
10.	Blue Horiz. Lines, Left	Blue Horizontal bars at left side of screen.	
11.	R-G Vert. Lines, Right	Red and Green Vertical lines at right side of screen.	(Fig. E)
12.	R-G Horiz. Lines, Right	Red and Green Horizontal bars at right side of screen.	Use control to converge blue bar with red and green bars on right side of screen (Fig. E).
13.	R-G Vert. Lines, Left	Red and Green Vertical bars at left side of screen.	(Fig. E)
14.	R-G Horiz. Lines, Left	Red and Green Horizontal bars at left side of screen.	Use control to converge blue bar with red and green bars at left side of screen (Fig. E).

FIGS. A THRU E ON PAGE 18

ALIGNMENT INSTRUCTIONS

Use an isolation transformer and maintain voltage at 117 volts. Allow a 20-minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1 thru A11..... GENERAL CEMENT #8606, 8869, 9302 ... WALSCO #2511, 2543, 2588
Mixer Plate Coil .. GENERAL CEMENT #9296, 9300, 9302 ... WALSCO #2510, 2511, 2547

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough generator output to provide a usable indication. Note: Response may vary slightly from those shown.
Connect a variable bias supply to the IF AGC line (point Ⓐ) and adjust to obtain a response curve which shows no indication of overload.
Disable Oscillator section of Mixer-Osc. Set the Channel Selector to any non-interfering channel.

	INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
1.	Connect DC probe of a VTVM thru a 47K resistor to point Ⓑ. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		41.25MC 47.25MC	A1, R21 A2, R22	Adjust for MINIMUM. Keep cores of L5 (A1) and L1 (A2) at coil end away from board.
2.	Connect DC probe of a VTVM thru a 47K resistor to point Ⓑ. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		43.8MC 42.5MC 45.75MC 44.0MC	A3 A4 A5 A6, Mixer Plate Coil	Adjust for maximum with core nearest printed board end of coil for A3, A4 and A5. Adjust A6 for maximum with core at top end of coil and Mixer Plate Coil with core at bottom of coil.
3.	Connect vertical input of a scope to point Ⓑ. Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	41.25MC 42.17MC 42.75MC 45.0MC 45.75MC 47.25MC	"	Adjust for maximum gain and symmetry of response with markers as shown in Figure 1.

4.5 MC TRAP ALIGNMENT

Tune in a strong TV signal and set the Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible on the screen.
Adjust A11 for MINIMUM beat interference.

SOUND IF ALIGNMENT

Connect a VTVM thru a detector probe to point Ⓒ. Tune in a TV station and adjust A7, A8 and A9 for maximum deflection. Remove VTVM. Reduce the signal at the antenna terminals until distortion occurs in the sound. Adjust A10 clockwise from fully out position to the second peak for maximum sound. Continue to reduce the signal and adjust A10 for MINIMUM distortion and maximum sound until no further improvement can be made.

CHROMA BANDPASS ALIGNMENT

The following alignment will require the use of an RF Modulator (RCA WG304A or equivalent). Connect a -15 volt supply to point Ⓓ. Connect a -2 volt supply to point Ⓔ. Connect a -15 volt supply to point Ⓕ. Positive of all supplies to ground. Connect a Jumper from point A to ground. Turn Color Intensity to maximum. Remove the Horizontal Output Tube and connect a 2000Ω, 100W resistor from 405 volt source to ground.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	High side thru .1mfd to grid of Bandpass Amp., V17A, low side to ground.	3.58MC (3-5MC Sweep)	3.08MC 4.08MC		Vert. Amp. thru Detector Probe to pin 1 of demodulators point Ⓖ, low side to ground.	A12 A13	Adjust for response curve similar to Fig. 2.
5.	High side of sweep gen. to Video sweep input of RF Demodulator. High side of signal gen. (set ⓐ 45.75MC) to picture carrier input. Output of RF Modulator to Mixer Grid Test Point on Tuner low side to ground.	Sweep Gen. to 3MC (6MC Sweep)			"	A14	Adjust for response curve similar to Fig. 3. If necessary, retouch A12 to flatten top of response.

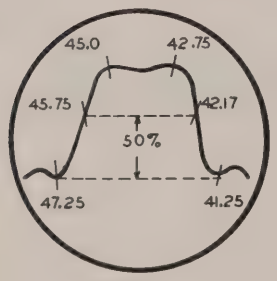


FIG. 1

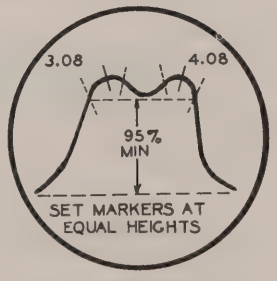


FIG. 2

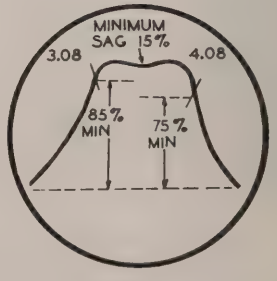
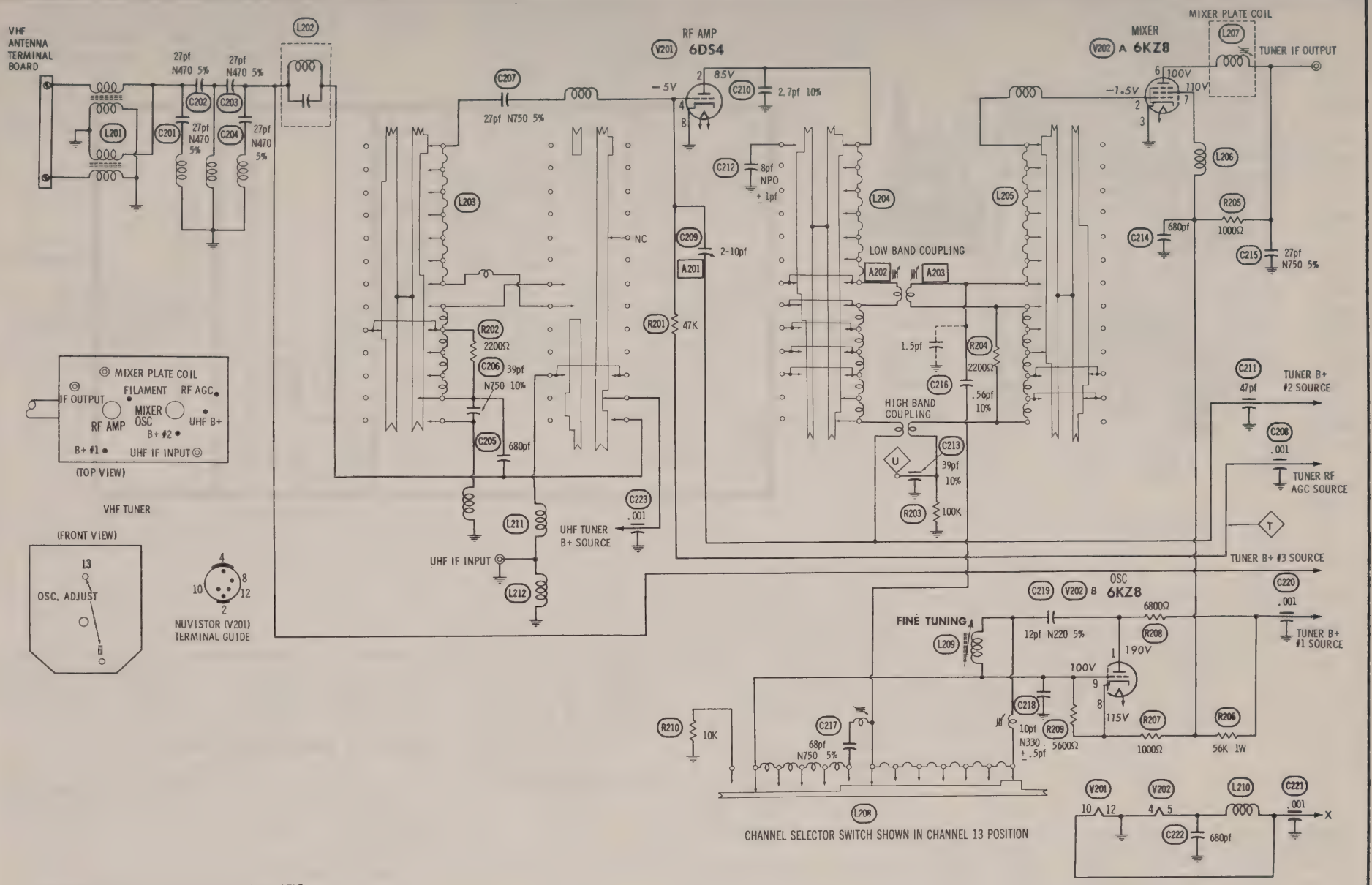


FIG. 3



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13 POSITION SWITCH-TYPE VHF TUNER KRK118D/E

UHF TUNER PARTS LIST AND DESCRIPTION

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X301	35449	UHF Oscillator				NPN, Part #114267(113938-Alt.)

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.
X302		107729					1N82A

FIXED CAPACITORS

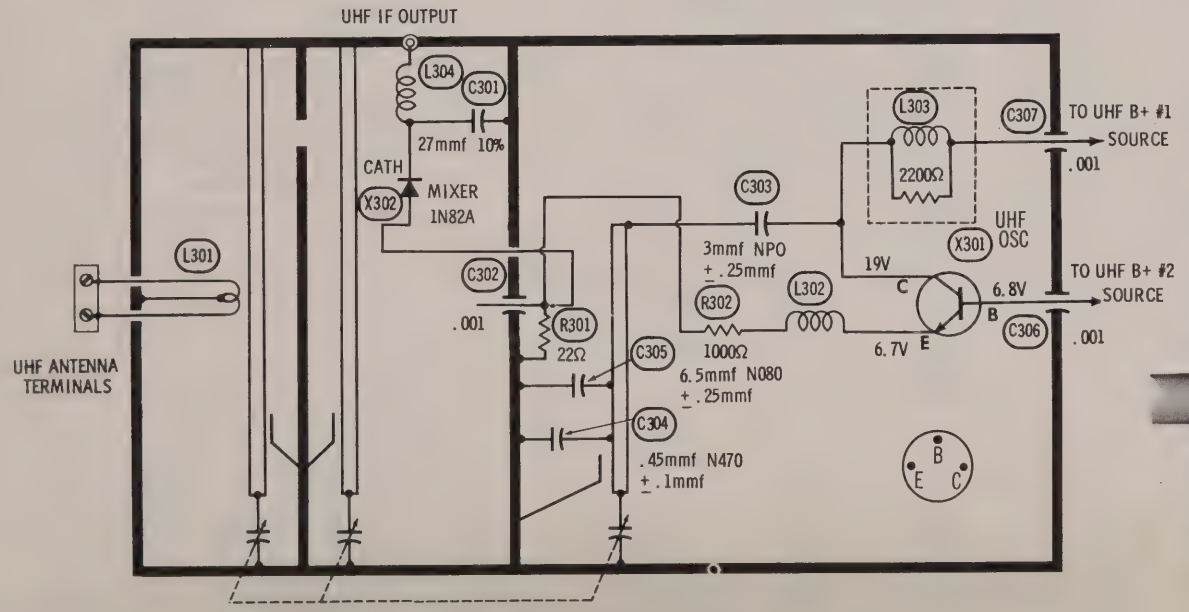
ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	27 10%		DI-27	DD-270	LA10Q27-SL	CCD-270	GP427	10TS-Q27
C302	.001	#113931						
C303	3 NPO ±.25mmf	#113932						
C304	.45mmf N470 ±.1mmf	#114341						
C305	6.5 N080 ±.25mmf	#113933						
C306	.001	#109595						
C307	.001	#109595						

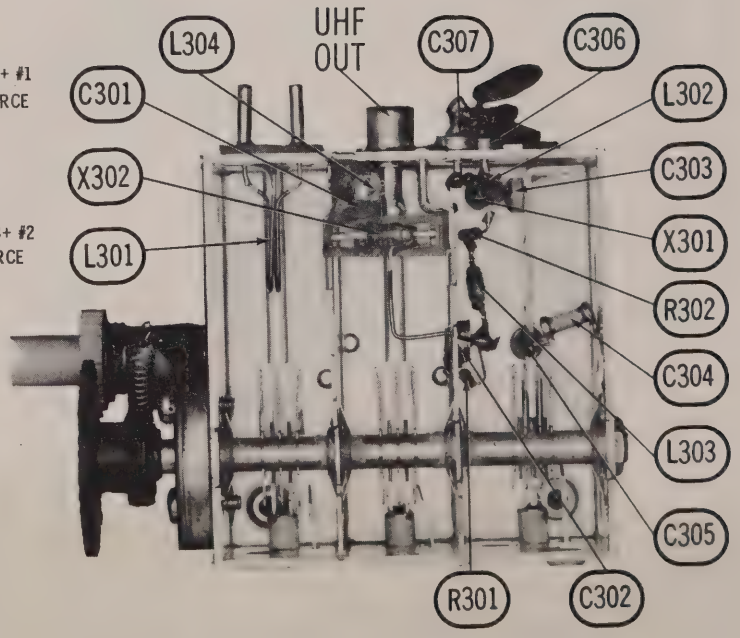
RCA Part Number.

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L301	Ant. Input	112302	
L302	RF Choke	78224	

ITEM No.	USE	RCA Victor PART No.	NOTES
L303	RF Choke	114340	16 turns on 2.2K resistor.
L304	Output Choke		





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PARTS LIST AND DESCRIPTION (CONTINUED)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	WORKMAN PART No.
L37	Horiz. Osc. and Waveform (Sine Wave)	112866						TB177
L38	Focus Shaft, Focus Control	113999						
L39	Horiz. Linearity (.25MH-1.1MH) (Efficiency)	112833						TB178 ①
L40	Dynamic Convergence (Right R/G Vert. lines) (2.8MH-6.8MH)	114006						T149
L41	Dynamic Convergence (Right R/G Horiz. lines) (1.2MH-4.6MH)	105065						
L42	Dynamic Convergence (Right Blue Horiz. line) (Pri. 3.6MH-9.5MH) (Sec. .13MH-.17MH)	113394						
L43	Convergence Yoke	109160						
A	Blue Section	(1107882-3)						
B	Green Section	109164 (1107882-3)						
C	Red Section	109164 (1107882-3)						
	Retainer, Conv. Coil Holder, Conv. Ass'y Slide, includes non-metallic slide.	114027						
	Holder, non-metallic mount on Conv. Coils	113033						
	Magnet, Conv. Ass'y	114029						
		105024						

① Disregard Tap.

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT	REPLACEMENT DATA: RCA Victor PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	NOTES
L44	.42ADC	18Ω	.4 Hy. 100⁻	112829 (1104665-4)	C-4133	C-3708	26C81	C-40X	

TRANSFORMER (POWER)

ITEM No.	RATING: PRI	SEC 1	SEC 2	REPLACEMENT DATA: RCA Victor PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	NOTES
T1	128VAC Tap @ 117VAC @ 3.33A	320VAC @ .48A DC	6.3VAC @ 1.9A	113991 (906158-501)					
		SEC 3							
		6.3VAC @ 12A							

*TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	NOTES
T2	Vert. Output	114047 (961415-4)		VO-700C		A-305X	
T3	Yoke (Horiz. 12MH) 70° (Vert. 38MH)	109457 (803562-509X)		DY-90AC		YC-300-1 ①	① Remove two (2) 560Ω resistors.
T4	Horiz. Output	113992 (906160-501)					

*COMPONENT CONNECTION DATA

ORIGINAL → / REPLACEMENT ↓	HV TRANSFORMER: Original Connections	VERTICAL OUTPUT: Original Connections										YOKE: Original Connections				
		Blu	Red	Grn	Grn/Wht	Yel	Grn	Red	Grn/Blk	Blk	Red	Red	Wht	Blk/Wht	Wht	Org	1	3	4	5
MERIT																				
STANCOR		Blue	Red	Grn	Grn/Wht	Yel	Grn	Red	Grn/Blk	Blk	Red	Red	Wht	Blk/Wht	Wht	Org				
THORDARSON																				
TRIAD		Blue	Red	Grn	Grn/Wht	Yel	Grn	Red	Grn/Blk	Blk	Red	Red	Wht	Blk/Wht	Wht	Org	1	3	4	5

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: RCA Victor PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	NOTES
T5	12500Ω	3-4Ω	113997 (D961429-9)	A-3901	A-3633	24S06	S-53X	

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA: RCA Victor PART No.	QUAM PART No.	NOTES
SP1	4" x 6" PM 3-4Ω	107476 ①	46A1	① Used in Models GF631M/W/Y/MR/WR/YR, GF681M/W, GF701WR/W/R, GF703L/LR, GF705Y/W/YR/WR, GF707C/F/Y/FR/VR.
	6" x 9" PM 6-8Ω	107706 ②		② Used in Models GF731M/W, GF737W, GF739C/L, GF741Y/W, GF743F/Y.
	4" PM 3-4Ω	111763 ③		③ Used in Models FF567E/M/W/Y/MR/WR, GF611M/W.
	6" x 9" PM 3-4Ω	112779 ④	69A3	④ Used in Model GF713M.
	3½" PM 7-9Ω	113034 ⑤		⑤ Used in Models GF641M/W, GF711M/W/MR/WR.
	4" x 6" PM 6-8Ω	113038 ⑥		⑥ Used in Models HF861W, HF863L, HF865Y/W, HF867Y/F.
	12" PM 8-10Ω	111989 ⑦	12A31PA	⑦ Used in Model GF713M.
	8" PM 3-4Ω	113004 ⑧	8A1	⑧ Used in Models GF641M/W, GF711M/W/MR/WR.
	6" x 9" PM 3-4Ω	112779 ⑨	69A3	⑨ Used in Models HF861W, HF863L, HF865Y/W, HF867Y/F.
	3½" PM 15-20Ω	111987 ⑩		⑩ Used in Model HF871M/W.
	3½" PM 18-30Ω	111987 ⑪		⑪ Used in Models HF863M/W, HF854M/W.
	3½" PM 18-20Ω	111987 ⑥		
	3½" PM 6-8Ω	113035 ⑦⑨	3A15TZS	
	3½" PM 6-8Ω	113035 ⑦⑩	3A15TZS	
	12" PM 8-10Ω	111989 ⑧	12A31PA	
	8" PM 3-4Ω	113004 ⑦	8A1	
	6" x 9" PM 3-4Ω	112779 ⑨	69A3	
	3½" PM 18-30Ω	111987 ⑪		
	3½" PM 18-20Ω	111987 ⑥		
	3½" PM 18-20Ω	111987 ⑧		
	3½" PM 18-20Ω	111987 ⑩		
	3½" PM 6-8Ω	113035 ⑦⑧	3A15TZS	
	3½" PM 6-8Ω	113035 ⑦	3A15TZS	

FUSES

ITEM No	TYPE	RATING	REPLACEMENT DATA: RCA Victor PART No. FUSE	RCA Victor PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3" #28 Fuse Wire							

PHONO CARTRIDGE & NEEDLES

"NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY

ITEM No.	REPLACEMENT DATA: RCA Victor PART No. CARTRIDGE	RCA Victor PART No. NEEDLE*	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE*	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE*	SONOTONE PART No. CARTRIDGE	SONOTONE PART No. NEEDLE*	NOTES
	111348 ①	110020A ♦ 110022A ■	487D	N564sd					♦ Diamond Sapphire ■ Dual Sapphire Needle
				N564ad ♦ N564 ■					Original Cartridge Replacement

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M2	VHF Tuner	KRK118E	Used in Models FF567MR/WR, GF631MR/WR/YR, GF701WR, GF703LR, GF705VR/WR, GF707FR/VR, GF711MR/WR, HF861WR, HF863LR, HF865VR/WR, HF867FR/VR.
	VHF Tuner	KRK118D	Used in Models FF567E/M/W/Y, GF631M/W, GF631M/W/Y, GF641M/W, GF681M/W, GF701W, GF703L, GF705Y/W, GF707C/F/Y, GF711M/W, GF713M, GF731M/W, GF737W, GF739C/L, GF741Y/W, GF743F/Y, HF853M/W, HF854M/W, HF857M/W, HF861M, HF863L, HF865Y/W, HF867F/Y.
M3	UHF Tuner	KRK130JR	Used in Models FF567E/M/W/Y/MR/WR, GF611M/W, GF631M/W/Y/MR/WR/YR, GF641M/W, GF681M/W, GF701W/WR, GF703L/LR, GF705Y/W/VR/WR, GF707C/F/Y/FR/VR, GF711M/W/MR/WR, GF713M, HF861M/WR, HF863L/LR, HF865Y/W/VR/WR, HF867E/Y/FR/VR.
	UHF Tuner	KRK130JT	Used in Models GF731M/W, GF737W, GF739C/L, GF741Y/W, GF743F/Y, HF853M/W, HF854M/W, HF857M/W.
M4	Crystal	105330	3.58MC Osc.
M5	Switch	114170	Master On/Off
M6	Switch	114170	Stand-By
M7	Switch	112896	Motor Latch
M8	Switch	114171	Program
M9	Switch	113338	Manual/Remote
M10	Switch	112192	VHF/UHF
M11	Switch	46760	Normal/Service
M12	Switch	113398	Video Peaking
M13	Switch	113398	Kine Bias
M14	Circuit Breaker	113950 (945830-4)	1.75 Amp.
M15	Magnet Assembly	105024	Convergence (3 required)
M16	Magnet Assembly	112933A	Blue Lateral
M17	Delay Line	109837	
M18	Motor	113251	Channel Selector
M19	Motor	113324	Volume
M20	Motor	113325	Tint
M21	Motor	113325	Color
M22	Degaussing Coil	114256	All Models except FF567E/M/MR/W/WR/Y and GF611M/W.
	Printed Circuit Board	114043	Sound Circuit Board - Complete, less tubes
	Printed Circuit Board	114043	Video IF Circuit Board - Complete, less tubes
	Printed Circuit Board	114044	Deflection Circuit Board - Complete, less tubes
	Printed Circuit Board	114045	Chroma Circuit Board - Complete, less tubes
	Printed Circuit Board	114046	Convergence Circuit Board Assembly

CABINET PARTS LIST ON PAGE 22

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17KV) or 8868 (25KV)
Shielded Hook-up Wire	Use BELDEN No. 8865 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors
Power Cord (Interlock Type)	Use BELDEN No. 8876 (Rubber) or 8885 (Plastic)
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8484 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

PARTS LIST AND DESCRIPTION

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

TUBES

ITEM No.	♦ AMPEREX ♦ GENERAL ELECTRIC ♦ RCA ♦ SYLVANIA ♦ USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF	6JH6	V14	HV Rectifier	3A3
V2	2nd Video IF	6GM6	V15	HV Regulator	6BK4A
V3	3rd Video IF	6EJ7	V16	Focus Rectifier	1V2
V4	1st - 2nd Video Amp.	6LF8	V17	Chroma Bandpass Amp.- Color Killer	6GH8A
V5	Video Output	12BY7A	V18	Burst Amp.	6EW6
V6	AGC Keying - Sync Sep. - Noise Inverter	6KA8	V19	Chroma Sync Phase Det.- Color Killer Detector	6JU8
V7	Sound IF	6EW6	V20	Chroma Reference Osc.-	
V8	Audio Detector	6H26		Chroma Ref. Osc. Control	6GH8A
V9	Audio Output	6AQ5A	V21	"Z" Demodulator	6GY6
V10	Vert. Mult. - Vert. Output	6GJ7	V22	B-Y Amp. - R-Y Amp.	6GU7
V11	Horiz. AFC - Horiz. Osc.	6FQ7	V23	"K" Demodulator	6GY6
V12	Horiz. Output	6JE8	V24	Horiz. Blanking Amp.-G-Y Amp.	6GU7
V13	Damper	6DW4			

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: RCA Victor PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	NOTES
V25	21FJP22	21FJP22 ①	21FJP22 ①	21FJP22 ②	① Aluminized ② Color Bright "85"

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS: GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	DIODES: GENERAL ELECTRIC PART No.
X1	.48A	113988	1N1696	A500 or 1N1095	1N1764 or 1N2863	60H or F-6	
X2	.48A	113988	1N1696	A500 or 1N1095	1N1764 or 1N2863	60H or F-6	
X3	.48A	113988	1N1696	A500 or 1N1095	1N1764 or 1N2863	60H or F-6	
X4	.48A	113988	1N1696	A500 or 1N1095	1N1764 or 1N2863	60H or F-6	
X5		113397 (972571-3)	GECR-3	1N1095	CR203	PG-33-18H-Q	
X6A	.006A	114013	1N1692 ①	A50 or D50 ①	1N2858 ①	10H or F-1 ①	
B	.045A	(1470990-1)					
C	.018A						
D	.007A						
X7		112524					1N60
X8		112524					1N60
X9		109474					6GC1

When replacing selenium rectifier with silicon type, add series resistance to obtain original output voltage.
① 4 Required.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	VOLT.	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	▲80	450	114001	AFH54-88-10	DD0178.8	XC3-32	TMT-3763	FP450.16	TVL84754 *
B	■30	450	(974576-31)		BR60-150	QT1-13	TD-40-150		
C	40	150							
D	▲20	450							
C2A	▲80	450	112827	AFH4-108-35	CC0370	XC3-32	TMT-3763	FP427.67	TVL84714.6*
B	■50	450	(974576-25)		BR50-50	QT1-15	TD-50-50		
C	▲20	250							
D	50	50							
C3A	▲2	350	112981	AFH2-98 ①	AA0510	XC1-8	TMS-1800	PFP230.7	TVL52738.5*
B	■80	450	(974576-28)		BR2-450	QT1-1	TD-3-450		
C4	50	150	109227 (442901-61)	PRS1480	BR50-150	QT1-17	TD-50-150	TC49	TVA-1414
C5	170	10VAC	112856 (1440545-1)	PRS7230				ST-156	TVANS1130 *
C6	170	10VAC	112856 (1440545-1)	PRS7230				ST-156	TVANS1130 *

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Use mounting wafer MW-4.

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	.033	100V 10%		P288N-033	DD-303	WMF1S33	1DP-1-333	PVC1133	2WF-S33
C8	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C9	.01			BPD-01	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C10	.047	200V		P288N-047	DD-503	PM2S47	4DP-3-473	GEM2147	2TM-S47
C11	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C12	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C13	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C14	9	NPO			TC2-10	C10Q1C	CCT0-100	CN0410	10TCC-Q10
C15	150	5%			DT2-150	C19T15C		CN0315	10TCC-T15
C16	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C17	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C18	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C19	680	N2200 10%	#102337						
C20	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C21	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C22	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10
C23	220	N1500 10%	#112878		TC1-22		*		
C24	.0022	10%		DI-2200	CF-222	JB6D22	CCD-222	GP222	10TS-D22
C25	.001			SI-1000	D6-102	LA10D1-C4	CCD-102	B210	5HK-D10

RCA VICTOR CHASSIS CTC16A/B/E/F/L/AB/AC/AF/AH

FOLDER 4

SET 736 FOLDER 4

PARTS LIST AND DESCRIPTION (CONTINUED)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

FIXED CAPACITORS (cont)

ITEM No	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C36	560	N1500 5%	#109142				*		
C37	.001			SI-1000	DS-103	LA10D1-C4	CCD-102	BS10	5HK-D10
C38	10	NPO 5%			TCZ-10	C10Q1C		CN0410	10TCC-Q10
C39	100	N033 10%	#105304						
C40	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C41	7	NPO 5%	#113394						
C42	.1	400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C43	3.5	NPO			TCZ-3R2	C10V35C	CCTO-3R5	CN0635	10TCC-V35
C44	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C45	.1	200V		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM201	2TM-P10
C46	.0022	10%		DI-2200	CF-222	JB8D22	CD-222	GP222	10TS-D22
C47	390	10%		DI-390	DD-391	LA10T39-C4	CCD-391	GP339	10TS-T39
C48	390	10%		DI-390	DD-391	LA10T39-C4	CCD-391	GP339	10TS-T39
C49	.22	300V		P282N-22		PM2P22	2DP-3-224	PVC3022	2TM-P22
C50	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C51	1.5	N3300	#103411				*		
C52	10	NPO 5%			TCZ-10	C10Q1C		CN0410	10TCC-Q10
C53	5	N1500 5%	#106384				*		
C54	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C55	750	N2200 5%							
C56	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C57	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C58	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C59	47	N750 10%	①	N750-DI 47	DTN-47	C10Q47U	CCN-591	GP339	10TU-Q47
C60	.047	25V		TTD-05	DA-503	B5		TA150	TG-S50
C61	560			DI-560	DD-561	LA10T56-C4	CCD-561	GP356	5GA-T56
C62	.0068			BPD-0068	DD-682	BYA10D68	CCD-682	B368	5HK-D68
C63	.001			SI-1000	DS-102	LA10D1-C4	CCD-102	B210	5HK-D10
C64	.0047			BPD-0047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C65	.036	200V 10%		BX2D1	CPR-1000J	WMF2P1	6DP-1-103	PVC621	6TM-D10
C66	.001			SI-1000	DS-102	LA10D1-C4	CCD-102	B210	5HK-D10
C67	220	10%		DI-220	DD-221	LA10T22-S3	CCD-221	GP322	10TS-T22
C68	.0033			BPD-0033	DD-332	BYA10D33	CCD-332	B233	5HK-D33
C69	150	10%	(390) †	DI-150	DD-151	LA10T15-S3	CCD-151	GP315	10TS-T15
C70	.001	NPO 10%		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C71	47	NPO 10%		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CN0447	10TCC-Q47
C72	.0015			BPD-0015	DD-152	LA10D15-C4	CCD-152	B215	10TS-D15
C73	.0027	N5600 10%	#113387				*		6PS-S35
C74	.036	600V 10%	#113865						
C75	.1	600V		P698N-1	DF-104	PM6P1	6DP-4-104	GEM601	6TM-P10
C76	.1	600V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM601	6TM-P10
C77	.47	200V		P282N-47		PM2P47	2DP-3-474	PVC2047	2PS-P47
C78	.0022			SI-2200	D6-222	BYA10D22	CCD-222	B222	5HK-D22
C79	.0068	400V 10%		BXED68	CPR-680J	WMF4D68	6DP-1-682	PVC4268	5PS-D68
C80	680			BPD-00068	DD-681	BYA10T68	CCD-681	B368	10TS-T68
C81	680			BPD-00068	DD-681	BYA10T68	CCD-681	B368	10TS-T68
C82	.047	300V		P288N-047	DD-503	PM3S47	4DP-3-473	GEM3147	3TM-S47
C83	.0022	1KV		P1088N-002		PEM18D22	18DP-3-202	B382	MB-D8
C84	.001	2KV 10%	#105320						
C85	68	NPO 10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CN0468	10TCC-Q68
C86	47	NPO 10%		NPO-DI 25	TCZ-27	C10Q25C	CCTO-270	CN0427	10TCC-Q27
C87	820	10%		DI-820	DD-821	JD6T8	CCD-821	GP382	10TS-T82
C88	820	10%		DI-820	DD-821	JD6T8	CCD-821	GP382	10TS-T82
C89	.22	200V		P282N-15		PM2P15	2DP-3-154	PVC2015	2PS-P15
C90	.001	10%		DI-1000	DD-102	JB6D1	CCD-102	GP310	10TS-D10
C91	.01	400V 10%		BE4S1	CPR-10000J	PM4S1	4DP-1-103	GEM411	4PS-S10
C92	390,1.5KV,N1500,5%		#109806						
C93	680	500V 5%		ADM-19-681	CPR-680J	CD19F681J	DM-16-681J		MS-368
C94	.0015	600V 10%		BE6D15		PM6D15	6DP-1-152	GEM6315	6PS-D15
C95	.01	600V		P688N-01		PM6S1	6DP-2-103	GEM611	6TM-S10
C96	.1	600V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM601	6TM-P10
C97	.047	600V		P688N-047	DD-503	PM6S47	6DP-3-473	GP3623	6TM-S47
C98	.0022	1KV		BPD-0022	DD-222	LA10Q22-C4	CCD-222	B222	10TS-D22
C99	.01	1.4KV		DAC-27	DD16-103	HVE1681	16DP-3-103	UAC-110	BL-S10
C100	130	6KV,N2200	#109229						
C101	.01	1KV		BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C102	.1	500V		P688N-1	DF-104	PM6P1	6DP-4-104	GEM601	6TM-P10
C103	22,1KV,N750,10%			N750-DI 22	DTN-22	C10Q22U	CCTN-220	CN7422	10TCU-Q22
C104	.056	300V 10%		BX6S6		PM6S6	6DP-3-563	PVC2156	2WF-S56
C105	.15	600V	②						
C106	.15	600V	②						
C107	100,5KV,N1500,6%		#108306						
C108	560,2.5KV,N3300,10%		#109843						
C109	560,2.5KV,N3300,10%		#109843						
C100	130		N750						
C101	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C102	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C103	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C104	120	N4200 10%	#105242						
C105	330	500V 5%		ADM-15-331	CPR-330J	CD19F331J	DM-15-331J		MS-333
C106	330	500V 5%		ADM-15-331	CPR-330J	CD19F331J	DM-15-331J		MS-333
C107	330	500V 5%		ADM-15-331	CPR-330J	CD19F331J	DM-15-331J		MS-333
C108	330	500V 5%		ADM-15-331	CPR-330J	CD19F331J	DM-15-331J		MS-333
C109	10	NPO 10%		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CN0410	10TCC-Q10
C110	.047	200V		P288N-047	DD-503	PM2S47	4DP-3-473	GEM2147	2TM-S47
C111	820	10%		DI-820	DD-821	JB6T8	CCD-821	GP382	10TS-T82
C112	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C113	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C114	150	10%	†	DI-150	DD-151	LA10T15-S3	CCD-151	GP315	10TS-T15
C115	470	N750 5%			TCN-470				10TCU-T47
C116	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C117	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C118	1.3	10%	#112864						
C119	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C120	.1	200V		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM201	2TM-P10
C121	4	NPO ±.5pf	#105347						10TCC-V39
C122	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C123	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C124	10	10%		DI-10	DD-100	LA10Q1-SL	CCD-100	GP410	10TS-Q10
C125	220	N750 10%		N750-DI 220	DTN-220	C10T22U	CCTN-221	CN7322	10TCU-T22
C126	82	10%		DI-82	DD-820	LA10Q82-S3	CCD-820	GP482	10TS-Q82
C127	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C128	200	500V 5%		ADM-15-201	CPR-200J	CD15F201J	DM-15-201J		MS-32
C129	6	NPO ±.5pf							
C130	.22	400V		P488N-22		PM4P22	4DP-5-224	PVC4022	4PS-P22
C131	.01	600V		P688N-01		PM6S1	6DP-2-103	PVC611	6PS-S10

FIXED CAPACITORS (cont)

ITEM No	RATING		REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C132	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C133	.047	200V		P288N-047	DD-503	PM3S47	4DP-3-473	GEM2147	2TM-S47
C134	33			DI-33	DD-330	LA10Q33-SL	CCD-330	GP433	5GA-Q33
C135	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C136	.01	600V		P688N-01		P681	6DP-3-103	PVC611	6PS-S10
C137	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C138	33			DI-33	DD-330	LA10Q33-SL	CCD-330	GP433	5GA-Q33
C139	.01	600V		P688N-01		PM6S1	6DP-1-103	PVC611	6PS-S10
C140	.01			BPD-01	DD-103	BYA10B1	CCD-103	B110	5HK-S10
C141	.001			BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C142	.001	1KV		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C143	.001	1KV		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C144	.001	1KV		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C145	68,4KV,N1500,10%		#112847				*		
C146	.001	1KV		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C147	.001	1KV		BPD-001	DD-102	BYA10D1	CCD-102	B210	5HK-D10
C148	.047	600V		P688N-047	DD-503	PM6S47	6DP-3-473	GEM6147	6TM-S47
C149	100,2KV,N1500,10%		#105418						
C150	100,2KV,N1500,10%		#105418						
C151	.47	200V		P288N-47		PM2P47	2DP-5-474	PVC2047	2TM-P47
C152	.056	400V 10%		BE6S56		PM4S56	4DP-3-563	PVC4156	4PS-S56
C153	.1	400V		P488N-1	DF-104	PM4P1	4DP-3-104	GEM401	4TM-P10
C154	.1	200V		P288N-1	DF-104	PKM2P1	2DP-3-104	GEM201	2TM-P10
C155	.12	200V 10%				PM4P12			2WF-P12
C156	.082	200V 10%				PM4S82	6DP-4-833		2WF-S82
C157	330	500V 5%		ADM-15-331	CPR-330J	CD15F331J	DM-15-331J		MS-333
C158	180	1KV		DI-180	DD-181	LA10T18-S3	CCD-181	GP318	10TS-T18
C159	15	NPO 10%		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CN0315	10TCC-Q15

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Not used in some versions.
② C95 and C96 are a matched pair, RCA Victor Part #114008.
RCA Victor Part Number
† Alternate Value

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA: RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Volume	1meg	114269 ①				
		180K Tap	(4425-211)				
R2	Brightness	250K	113988 ②	F1-250K,	A47-250K-S	B11-130, SK9	UA254L, SD3500 or
			(1470384-8)	SF3212 or	RS-3/16	or (BU1, CF15,	(RU254L, SL35,
				(AB-50, AK-33)		SB4, DC1) *	IS2437) or
R3	Tint	1200Ω	112938 ③				(U46, DS37)
R4	Color	750Ω	112935 ④				
		450Ω Tap	(4425-153)				
R5	Tone	2.5meg	114017	F1-2.5meg	A47-2.5meg-S	B11-239, SK9	UA255L, SD3500 or
			(1472200-6)	SF3212 or	RS-3/16	or (BU1, CF20,	(RU255L, SL35,
				(AB-83, AK-33)		SB4, DC1) *	IS1437) or
							(U265, DS37)
R6	Contrast	350Ω	114019	F1-500,	A47-500-S	B11-103, SK9	UA52L, SD3500 or
			(1472200-11	SF3212 or	RS-3/16	or (BU1, CF4,	(RU52L, SL35,
				(AB-4, AK-33)		SB4, DC1) *	IS1437) or
							(U2, DS37)
R7	Vert. Hold	750K	114016	F1-750K,	A47-750K-S	B11-136, SK9	RU754L, SL35,
			(1472200-8)	SF3212 or	RS-3/16	or (BU1, CF64,	IS1437 or
				(AB-66, AK-33)		SB4, DC1) *	(U161, SD3500)
							or (U54, DS37)
R8	Horiz. Hold -	35K	114018	F1-50K,	A47-40K-S	B11-122, SK9	UA54L, SD3500 or
			(1472200-10)	SF3212 or	RS-3/16	(BU1, CF12,	(RU54L, SL35,
				(AB-31, AK-33)		SB4, DC1) *	IS1437) or
							(U35, DS37)
R9	AGC	6000Ω	112830	V-5000 or	U39-5000	W11-214, SK5	VW5K or (C8KP)
		(2W)	(1107821-18)	(WN-502)		or (BU1, WF8,	or (WW53L,
						SB6) *	SP3000)
R10	Color Killer	1meg	112841	T7-69 or	B47-1meg-S	B11-137, TM4	PTA1254L or
			(1470372-2)	(F1-1meg,		or (BU1L,	(RU16L, SL37,
				SN010)		CF17, SB6) *	SN1000) or
							(UA18L, SN1000)
R11	Green Drive	6000Ω	113993	F1-7500 ⑤		B11-115 ⑤	HVC63L
			(1472268-1)	SNK019		TM4	
R12	Blue Drive	6000Ω	113993	F1-7500 ⑤		B11-115 ⑤	HVC63L
			(1472268-2)	SNK010		TM4	
R13	Vert. Linearity	3.4meg	114020	F1-3meg		B11-140 ⑥	HVC355L
			(1472268-6)	SNK010		TM4	
R14	Vert. Height	100K	112843	T7-40 or	B47-100K-S	B11-128, TM4	PTA15L or
			(1470372-6)	(F1-100K,		or (BU1L,	(RU15L, SL37,
				SN010)		CF13, SB6) *	SN1000) or
							(UA15L, SN1000)
R15	Vert. Centering	10Ω 2W	113400	V-10 ⑦ or	U39-10 ⑦	W11-010, SK5	VW10 or (C10P)
			(1107821-17)	WN-100		or (BU1, WF16,	or (R10L)
						SB6) *	
R16	High Voltage Adjust	500K	113842	T7-59 or	B47-500K-S	B11-133, TM4	PTA55L or
			(1470372-4)	(F1-500K,		or (BU1L,	(RU55L, SL37,
				SN010)		CF16, SB6) *	SN1000) or
							(UA55L, SN1000)
R17	Red Screen	1.5meg	113994	F1-1.5meg ⑧		B11-138 ⑧	HVC165L
			(1472268-3)	SNK010		TM4	
R18	Green Screen	1.5meg	113994	F1-1.5meg ⑧		B11-138 ⑧	HVC165L
			(1472268-4)	SNK010		TM4	
R19	Blue Screen	1.5meg	113994	F1-1.5meg ⑧		B11-138 ⑧	HVC165L
			(1472268-5)	ANK010		TM4	
R20	Horiz. Centering	10Ω 2W	114031			(BU1L, WF16,	
			(1472273-1)			SB6) *	
R21	Sound Reject	750Ω	114319				
R22	Adjacent Sound Reject	10K	106388				MTC751L4
R23	R & G Horiz. Lines (Bottom)	150Ω 2W	109472 (1107821-7)	V-150	U39-150	110C150	PFL150PA

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA: PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	NOTES
R24	R & G Horiz. Lines (Top)	30Ω 2W	106321 (1107821-6)	V-30	U39-50	110C30	PFL30PA	
R25	R & G Horiz. Lines (Left)	60Ω 2W	105059 (1107821-2)	V-60	U39-75	110C60	PFL60A	
R26	R & G Vert. Lines (Bottom)	60Ω 2W	105059 (1107821-2)	V-60	U39-75	110C60	PFL60A	
R27	R & G Vert. Lines (Top)	120Ω 2W	106320 (1107821-5)	V-120	U39-125	110C120	PFL120PA	
R28	R & G Vert. Lines (Left)	60Ω 2W	105059 (1107821-2)	V-60	U39-75	110C60	PFL60A	
R29	Blue Horiz. Lines (Bottom)	30Ω 2W	106321 (1107821-6)	V-30	U39-50	110C30	PFL30PA	
R30	Blue Horiz. Lines (Top)	60Ω 2W	105059 (1107821-2)	V-60	U39-75	110C60	PFL60A	
R31	Blue Horiz. Lines (Left)	120Ω 2W	106320 (1107821-5)	V-120	U39-125	110C120	PFL120PA	

① Tuner Assembly TMA62A uses Volume Control #113987, Tuner Assembly TMA72A uses Part #113989.
② Tuner Assembly TMA72A uses Brightness Control #113579.
③ Chassis CTC16A, E use Part #112838, Chassis CTC16L uses Part #112580.
④ Chassis CTC16A, E use Part #112836, Chassis CTC16L uses Part #113576.
⑤ Insulate control from chassis and solder original center terminal lead to metal case of control.
⑥ Use original nylon mounting bracket.

* "SNAPTROL"

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN PART No.	REMARKS
R33	16K 5W	1 3/4A-16K	TG-16K	#113960
R35	16K 5W	1 3/4A-16K	TG-16K	#113960
R58	10K 10W	PW10-10K	10W-SQ-10K	#102341
R63	6800Ω 5W	PW10-7000	SG-6800	#105862
R85	4500Ω 5W	PW5-4500	5W-SQ-4400	#112852
R105	5600Ω 5W	MR 4	5G-5600	#104180
R110	V.D.R. † 1460V,10MA			#112876
R112	1000Ω 3W	PW5-1000	3G-1000	#105712
R114	3.8Ω (Cold) Thermistor		FR 3.8	#109454
R135	13K 7W	MR 4	10W-SQ-12.5K	#109791
R136	2200Ω 3W	PW5-2250	5W-SQ-2200	#113543
R143	66meg, 6KV			#113947

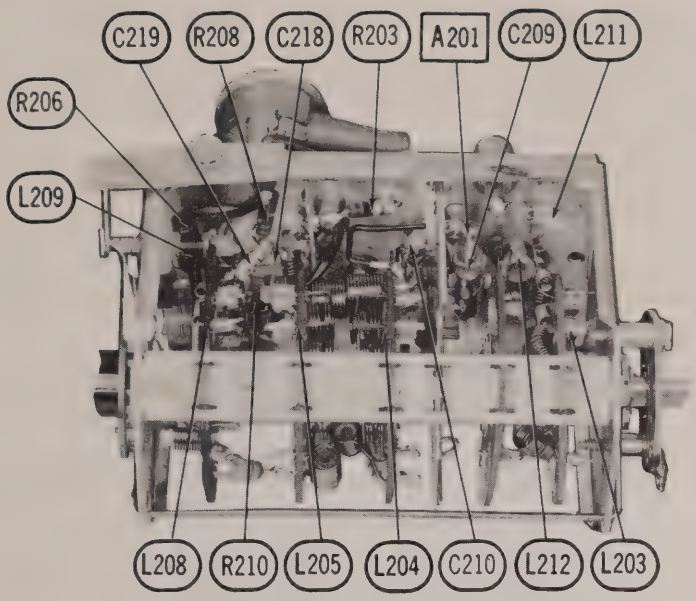
† Voltage Dependent Resistor

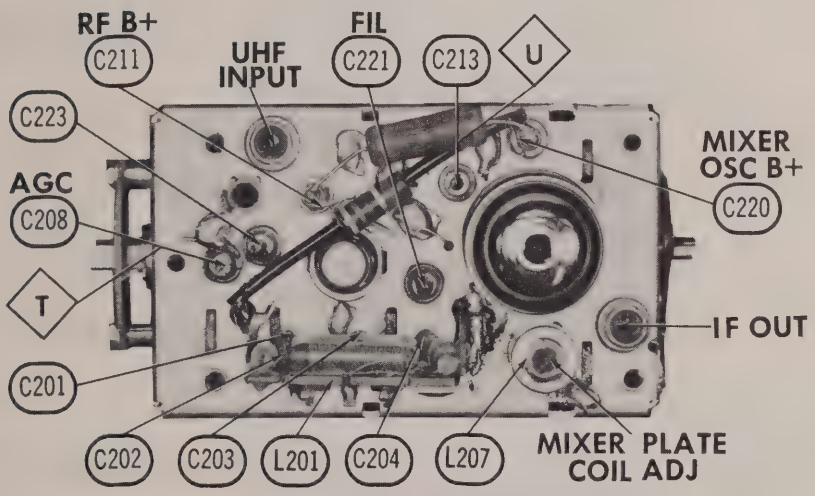
ITEM No.	RATING	REPLACEMENT DATA: IRC PART No.	WORKMAN PART No.	REMARKS
R170	39K 3W	PW10-40K		#106753
R198	270Ω 3W	MR 3		#106792
R201	2700Ω 3W	MR 4	3G-2700	#109013
R203	5800Ω 4W	MR 4	4G-5600	#105222
R205	39K 4W	PW10-40K		#105753
R208	1200Ω 4W	PW5-1200	5W-SQ-1250	#502127
R209	1200Ω 7W	PW10-1200	10W-SQ-1250	#112853
R210	1400Ω 18W	2C-1500	20W-SQ-1400	#113389
R212	3300Ω 3W	PW5-3300	3G-3300	#114005
R214	120Ω (Cold) Thermistor		FR 191	#113996
R215	V.D.R. † 20V, 67MA			#114014

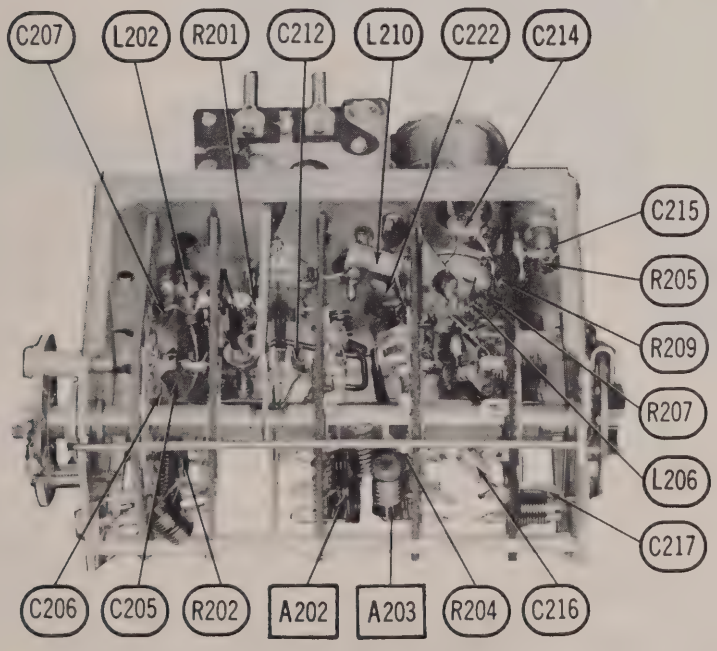
RCA Victor Part Number

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	NOTES
L1	47.25MC Trap	109255					
L2	1st Video IF	109252					
L3	2nd Video IF	113547					
L4	3rd Video IF	112879					
L5	4th Video IF - 41.25MC Trap	112871 (1107858-2)					
L6	RF Choke (13uh)	105308	BC-566	72F125AP	RTC-8522	TA343	
L7	4.5MC Trap	105295				TA264	
L8	Peaking (850uh)	113404	BC-679	72F684AP	RTC-8530	T356	
L9	Peaking (56uh)	101819	TV-180	6176	RTC-8593	T301	
L10	RF Choke (5.6uh)	109171	BC-565	74F566AP	RTC-8519	T820	
L11	Peaking (330uh)	105037	TV-201	72F394AP	RTC-8172	TA338	1 May be 330uh in some versions, RCA #114345.
L12	Peaking (680uh)	113388 1/2	TV-206 ▲	72F684AP*	RTC-8583 *	T327 *	2 Wound on 15K resistor.
L13	Peaking (72uh)	77842	TV-186	6172	RTC-9171	T303	* Shunt with 15K resistor.
L14	Peaking (82uh)	109940	BC-666	6110	RTC-8573	T338	3 Wound on 2.2K resistor.
L15	Peaking (120uh)	109131 ③	TV-195 ▲	6153 ▲	RTC-8595 ▲	TA344	▲ Shunt with 2.2K resistor
L16	Peaking Transformer	109634 ④					4 May be RCA #114346 in some versions.
L17	RF Choke (5.6uh)	109171	BC-565	74F566AP	RTC-8519	T820	
L18	RF Choke (1.8uh)	109441	BC-566	72F125AP	RTC-8522	TA820	
L19	RF Choke (1.8uh)	109248	BC-562	74F186AP	RTC-8516	T990	
L20	RF Choke (5.6uh)	109171	BC-565	74F566AP	RTC-8519	T820	
L21	1st Sound IF	109261 (1470005-3)		TI07-R		TF399	
L22	2nd Sound IF	113790 (1107858-4)					
L23	Quadrature	106383 (1470005-2)		TI10-R		TA265	
L24	Chroma Takeoff	113873 ⑤					⑤ May be RCA #114347 in some versions.
L25	Chroma Bandpass	114003					
L26	RF Choke (5.6uh)	109171	BC-565	74F566AP	RTC-8519	T820	
L27	Burst Phase Det.	114004					
L28	Peaking (47uh)	114000	BC-665	72F475AP	RTC-8593	TG348	
L29	Chroma Osc. Contr.	113874					
L30	3.58MC Oscillator Output	114012					
L31	RF Choke (10uh)	113887	BC-566	72F105AP	RTC-8522	T880	
L32	Peaking (820uh)	109257	TV-205	6146	RTC-8530	T326	
L33	Peaking (620uh)	109257	TV-205	6146	RTC-8530	T326	
L34	Peaking (620uh)	109257	TV-205	6146	RTC-8530	T326	
L35	RF Choke (5.6uh)	109171	BC-565	74F566AP	RTC-8519	T820	
L36	RF Choke (5.6uh)	109171	BC-565	74F566AP	RTC-8519	T820	







VHF TUNER KRK118E

VHF TUNER ALIGNMENT INSTRUCTIONS

OSCILLATOR ADJUSTMENTS

Starting with the highest available channel in area, check to see that all high band channels (7-13) can be tuned in with the fine tuning control. If any channel cannot be tuned in with the fine tuning, switch to the highest available high band channel in area. Set fine tuning to the center of its range, on each active high band channel, by turning fine tuning knob a MINIMUM of three complete turns counterclockwise, then turning clockwise one and one-half turns. Adjust the high band oscillator slug (accessible through a hole in the indicator drive gear) for best picture and sound. Recheck all high band channels.

Check all available low band channels to see if they are well within the range of the fine tuning. If not, switch to highest low band channel (2-6) in area. Set fine tuning to the center of its range, on each active low band channel, by turning fine tuning knob a MINIMUM of three complete turns counterclockwise, then turning clockwise one and one-half turns. Adjust the low band oscillator slug (accessible through a hole in the indicator drive gear) for best picture and sound. Recheck all low band channels.

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use 10MC sweep unless otherwise noted.
Connect a variable bias to the RF AGC line at point (T). Adjust bias to obtain response curve which shows no indication of overloading.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point (U), low side to ground		Expand or compress appropriate coils for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2.	"	195MC	193.25MC 197.75MC	10	Across Video Det. load resistor.	A201	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3.	"	See Chart	See Chart	12 thru 7	Vert. Input to Point (U), low side to ground.		Decrease bias. Check channels 7 thru 13 and make compromise adjustments by expanding or compressing appropriate coils.
4.	"	85MC	83.25MC 87.75MC	6	"	A202, A203	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
5.	"	See chart	See chart	5 thru 2	"		Check channels 2 thru 6 and make compromise adjustments by expanding or compressing appropriate coils if necessary.

CHANNEL & FREQUENCY CHART

SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR	MARKER GENERATOR FREQUENCY	CHANNEL
57MC	55.25MC 59.75MC	2	85MC	83.25MC 87.75MC	6	195MC	193.25MC 197.75MC	10
63MC	61.25MC 65.75MC	3	177MC	175.25MC 179.75MC	7	201MC	199.25MC 203.75MC	11
69MC	67.25MC 71.75MC	4	183MC	181.25MC 185.75MC	8	207MC	205.25MC 209.75MC	12
79MC	77.25MC 81.75MC	5	189MC	187.25MC 191.75MC	9	213MC	211.25MC 215.75MC	13

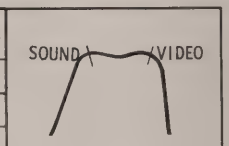


FIG. 201

Tune in a UHF Station and adjust UHF IF Input Coil for best picture and sound.

VHF TUNER PARTS LIST AND DESCRIPTION

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6DS4	V202	Mixer - Osc.	6KZ8

FIXED CAPACITORS

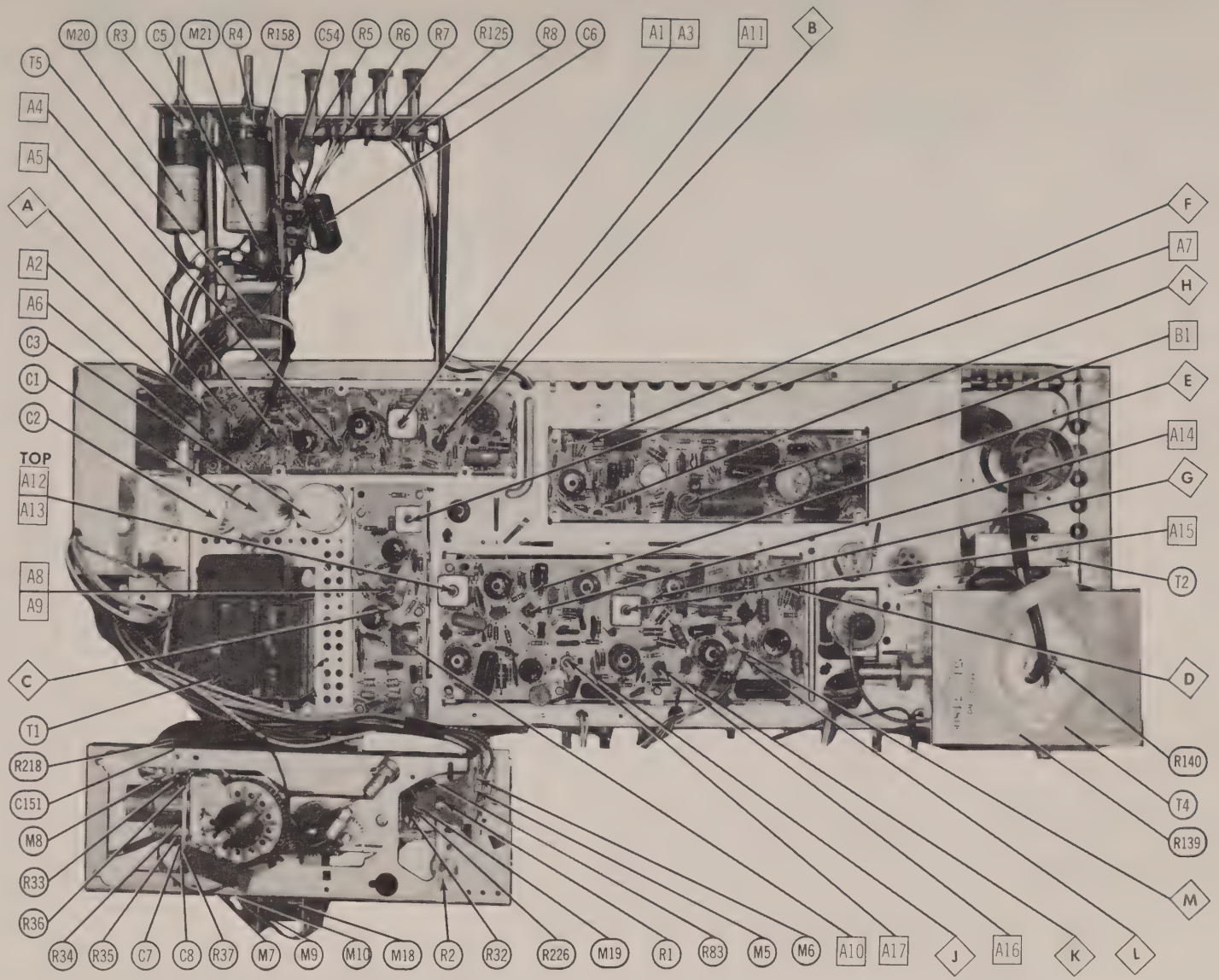
ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N470 5%	#109348				*		10TCU-Q27
C202	27 N470 5%	#109348				*		10TCU-Q27
C203	27 N470 5%	#109348				*		10TCU-Q27
C204	27 N470 5%	#109348				*		10TCU-Q27
C205	680		BPD-00068	DD-681	BYA10T68	CCD-681	B368	10TS-T68
C206	39 N750 10%		N750-DI 39	TCN-39	C10Q39U	CCTN-390	CN7439	10TCU-Q39
C207	27 N750 5%			TCN-27			CN7427	10TCU-Q27
C208	.001		EF-001	MFT-1000		CCF-102	CT280A	
C209	2-10	#112038		829-10				
C210	2.7 10%	#78443						
C211	47 10%	#112039						
C212	8 NPO ±1pf		NPO-DI 8.2					10TCC-V82
C213	39 10%	#112040						
C214	680		BPD-00068	DD-681	BYA10T68	CCD-681	B368	10TS-T68
C215	27 N750 5%			TCN-27			CN7427	10TCU-Q27
C216	.56pf 10%	#104949						
C217	68 N750 5%			DTN-68	C10Q68U		CN7468	10TCU-Q68
C218	10 N330 ±.5pf	#113279		TCZ-10		*		
C219	12 N220 5%					*		
C220	.001		EF-001	MFT-1000		CCF-102	CT280A	
C221	.001		EF-001	MFT-1000		CCF-102	CT280A	
C222	680		BPD-00068	DD-681	BYA10T68	CCD-681	B368	10TS-T68
C223	.001		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
# RCA Victor Part Number

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L201	Ant. Matching Assy.	113968	
L202	RF Choke		2 turns on 2.4pf capacitor
L203	Ant. Wafer	113977	Chan. 2 thru 13
L204	RF Wafer	113978	Chan. 2 thru 13
L205	Mixer Wafer	113979	Chan. 2 thru 13
L206	RF Choke		

ITEM No.	USE	RCA Victor PART No.	NOTES
L207	Mixer Plate	112909	
L208	Osc. Wafer	113976	Chan. 2 thru 13
L209	Fine Tuning	113323	
L210	Fil. Choke		
L211	RF Choke		
L212	UHF Input		



CHASSIS — TOP VIEW

RCA VICTOR CHASSIS
CTC16A/B/E/F/L/AB/AC/AF/AH

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12
V1	6JH6	310K	1400Ω	FIL	FIL	▮ 218Ω	▮ 218Ω	1000Ω					
V2	6GM6	85K	INF	FIL	FIL	† 3400Ω	† 3400Ω	68Ω					
V3	6EJ7	180Ω	0Ω	180Ω	FIL	FIL	0Ω	† 3100Ω	† 3100Ω	0Ω			
V4	6LF8	0Ω	27K	#† 6000Ω	FIL	FIL	22Ω	● 1200Ω	† 33K	† 10K			
V5	12BY7A	350Ω	550K	0Ω	FIL	FIL	FIL	†▲ 8600Ω † 6500Ω	† 23K	0Ω			
V6	6KA8	† 60K	4meg	3800Ω	FIL	FIL	55K	473K	† 32K	760K			
V7	6EW6	5.5Ω	270Ω	FIL	FIL	† 14K	† 14K	0Ω					
V8	6HZ6	4.5Ω	270Ω	FIL	FIL	† 560K	† 7100Ω	470K					
V9	6AQ5A	NC	270Ω	FIL	FIL	† 5000Ω	† 3800Ω	25K					
V10	6GF7	0Ω	3.2meg	2200Ω	FIL	FIL	† 1400Ω	NC	ǂ 6.5meg	900K			
V11	6FQ7	#† 25K	700K	1000Ω	FIL	FIL	† 61K	220K	49Ω	0Ω			
V12	6JE6	† 14K	1.9meg	0Ω	FIL	FIL	1.9meg	† 14K	1800Ω				
V13	6DW4	NC	† 22Ω	NC	FIL	FIL	NC	† 22Ω	NC	2.8meg			
V14	3A3	PINS 1 THRU 9 HAVE INFINITE RESISTANCE											TOP CAP ǂ 622.3Ω
V15	6BK4A	† 1000Ω	FIL	NC	NC	1.5meg	NC	FIL	NC				TOP CAP INF
V16	1V2	INF	INF	INF	66meg	66meg	INF	INF	INF	ǂ22.3Ω			TOP CAP ǂ 22.3Ω
V17	6GH8A	370K	220K	† 4800Ω	FIL	FIL	† 2900Ω	390Ω	0Ω	11meg			
V18	6EW6	32K	39K	FIL	FIL	† 21.2Ω	† 1416Ω	39K					
V19	6JU8	INF	220Ω	INF	FIL	FIL	0Ω	13meg	22K	13meg			
V20	6GH8A	† 20K	47K	† 47K	FIL	FIL	† 6800Ω	0Ω	680Ω	INF			
V21	6GY6	155Ω	100Ω	FIL	FIL	† 5300Ω	† 3800Ω	2Ω					
V22	6GU7	† 24K	1meg	270Ω	FIL	FIL	† 24K	1meg	270Ω	0Ω			
V23	6GY6	155Ω	150Ω	FIL	FIL	† 5300Ω	† 3800Ω	.3Ω					
V24	6GU7	† 47K	240K	390Ω	FIL	FIL	† 24K	1meg	270Ω	0Ω			
V25	21FJP22	FIL	† 120K	† 640K	† 6400Ω	† 4600Ω	† 120K	† 600K	NC	ǂ 75meg	NC	† 600K	† 120K
												Pin 13 † 3600Ω	Pin 14 FIL
V201	6DS4	NC	† 16K	NC	3.5meg	NC	NC	NC	0Ω	NC	FIL	NC	FIL
V202	6KZ8	† 8700Ω	100K	0Ω	FIL	FIL	† 59K	† 58K	† 59K	† 65K			
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12

\# THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● READING DEPENDS ON POLARITY OF METER CONNECTIONS.
† MEASURED FROM OUTPUT BRIDGE RECTIFIER SOURCE, X1 THRU X4.
▲ MEASURED IN "SERVICE" POSITION.
▮ MEASURED FROM PIN 2 OF V2.
ǂ MEASURED FROM PIN 9 OF V13.
NC NO CONNECTION

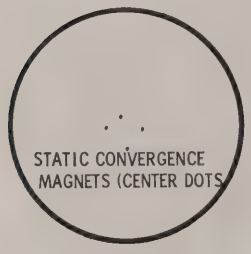


FIG. A

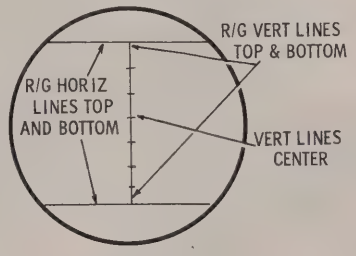


FIG. B
(RED & GREN ONLY)

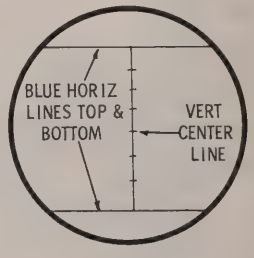


FIG. C
(BLUE BARS)

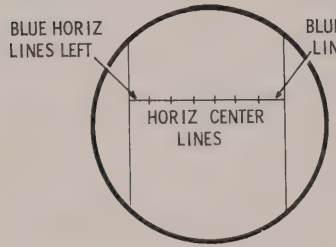


FIG. D
(BLUE BARS)

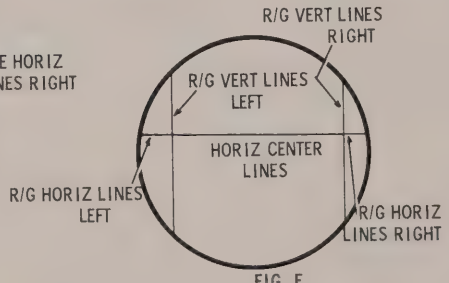
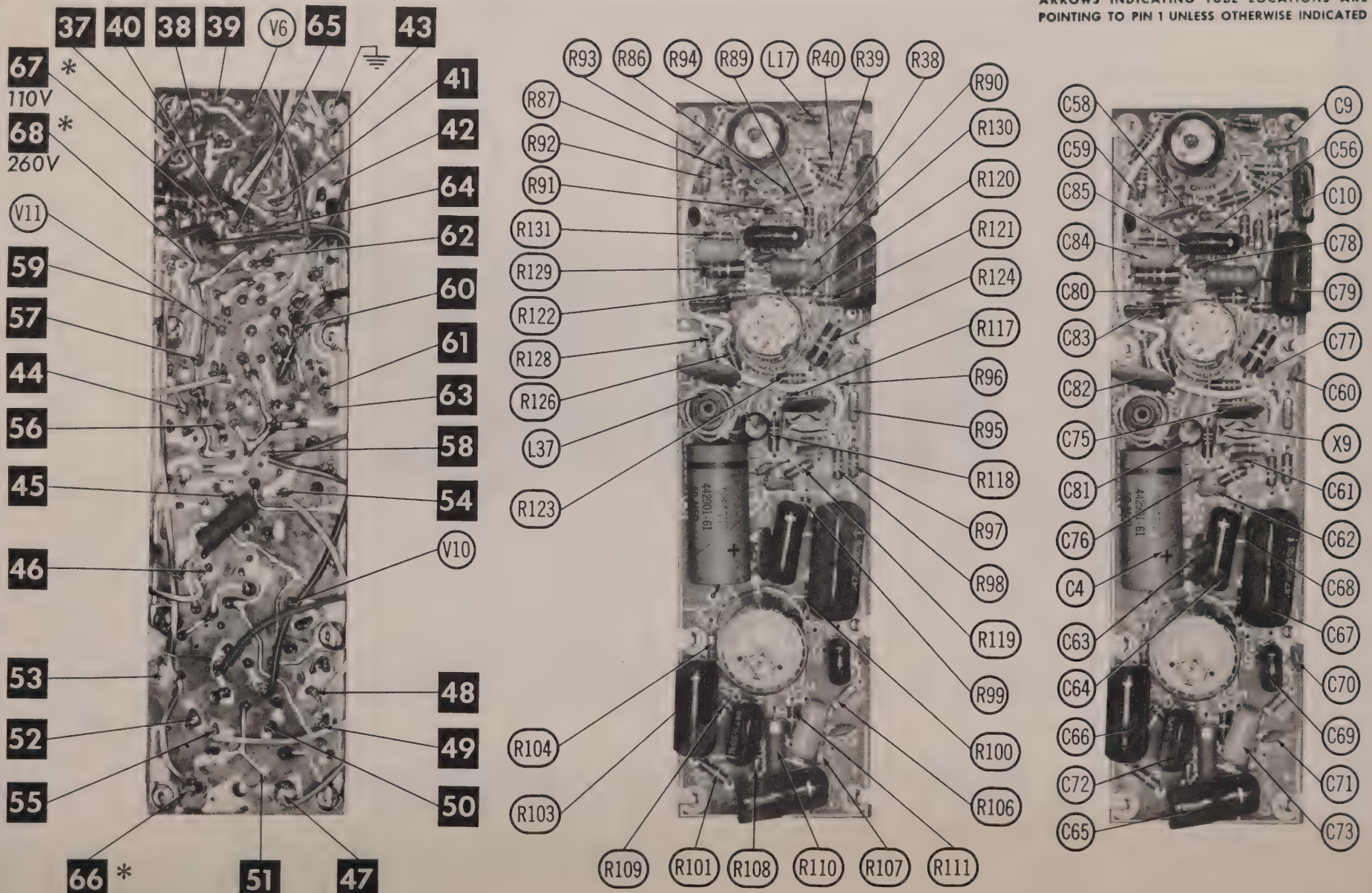


FIG. E

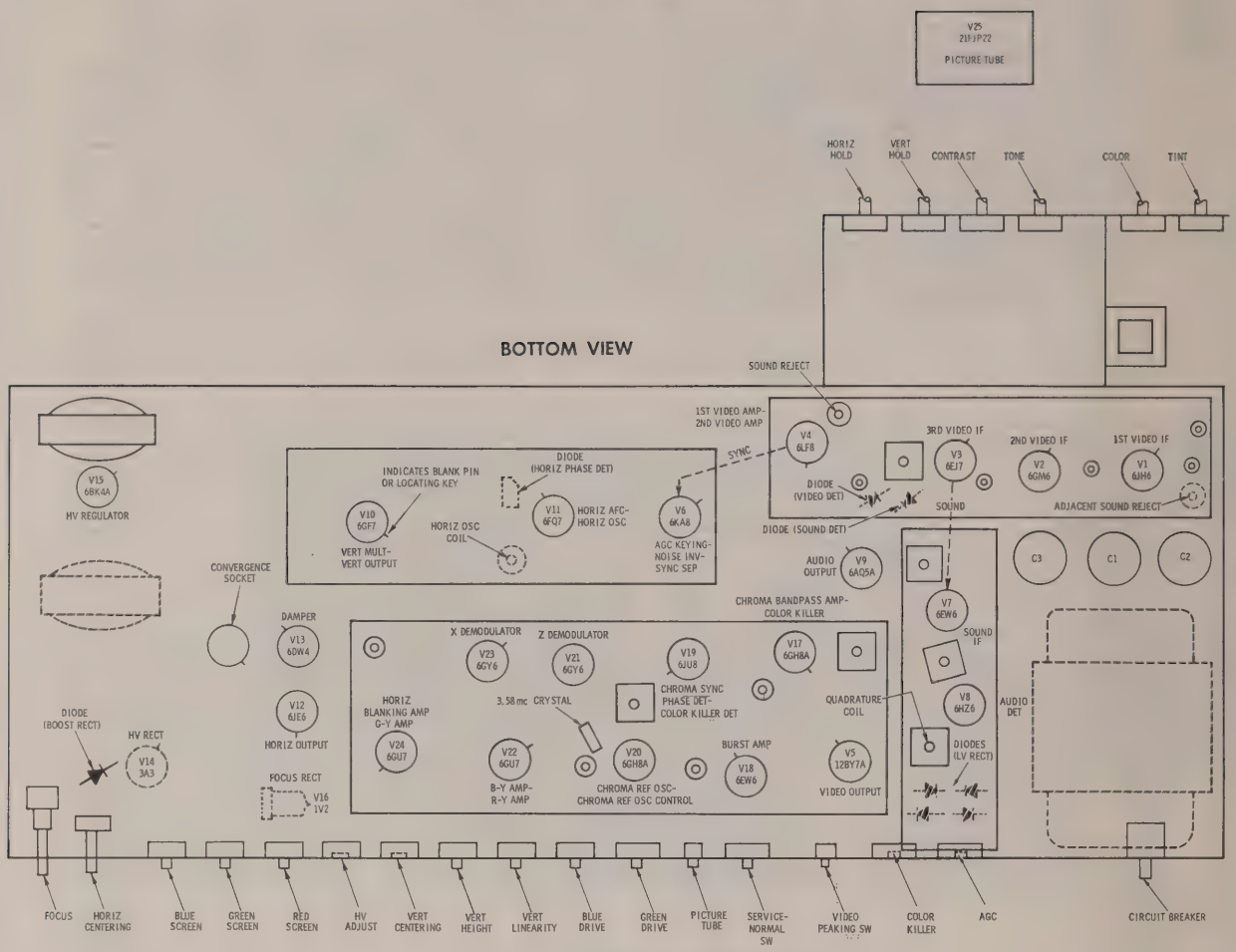
A Howard W. Sams CIRCUITRACE® Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



SWEEP PRINTED BOARD

TUBE PLACEMENT CHART



CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

	PART NUMBER	MODELS	FF567E	FF567M	FF567MR	FF567W	FF567WR	FF567Y	GF601M	GF601W	GF631M	GF631MR	GF631W	GF631WR	GF631Y	GF631YR	GF641M	GF641W	GF681M	GF681W	GF701W	GF701WR	GF705L	GF705LR	GF705V	GF705VR	GF705W	GF705WR	GF707C	GF707F	GF707FR	GF707V	GF707VR	GF711M	GF711MR	GF711W	GF711WR	GF713M	GF731M	GF731W	GF737W	GF739C	GF739L	GF741V	GF741W	GF743F	GF743V
MASK	114026		X																																										
MASK	114034			X		X		X	X	X																																			
MASK	114249				X		X																																						
MASK	114250										X		X		X																														
MASK	114251											X		X		X																													
MASK	114052																X	X																											
MASK	113922																		X	X	X		X		X		X		X	X		X											
MASK	114252																					X		X		X		X			X		X										
MASK	114253																																	X		X		X						
MASK	114254																																	X		X								
MASK	113901																																					X	X	X	X	X	X	X	X	X
KNOB, VHF CHANNEL SEL.	114037		X																																									
KNOB, VHF CHANNEL SEL.	113923			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
KNOB, VHF CHANNEL SEL.	113926																																					X	X	X	X	X	X	X	X	X
KNOB, UHF CHANNEL SEL.	114038		X																																									
KNOB, UHF CHANNEL SEL.	113924			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
KNOB, UHF CHANNEL SEL.	113925																																					X	X	X	X	X	X	X	X	X
KNOB, VHF FINE TUNING	114030		X																																									
KNOB, VHF FINE TUNING	113918			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
KNOB, VHF FINE TUNING	113912				-																																	X	X	X	X	X	X	X	X	X
KNOB, VOLUME, BRIGHTNESS	114033		X																																									
KNOB, VOLUME, BRIGHTNESS	113853			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
KNOB, BRIGHTNESS	113909																																					X	X	X	X	X	X	X	X	X
KNOB, VOLUME	113320																																					X	X	X	X	X	X	X	X	X
KNOB, COLOR	114040		X																																										
KNOB, COLOR	113906			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
KNOB, COLOR	113908																																					X	X	X	X	X	X	X	X	X
KNOB, TINT	114041		X																																										
KNOB, TINT	113907			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
KNOB, TINT	113910																																					X	X	X	X	X	X	X	X	X
KNOB, CONTRAST, TONE, HORIZ, VERT HOLD	114032		X																																									
KNOB, CONTRAST, TONE, HORIZ, VERT HOLD	113921			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

RECEIVER WIRING DATA

PARTS LIST AND DESCRIPTION

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid 22AWG) 8524 (Stranded 22AWG) 8570 (Stranded 26AWG)	Available in 12 Colors

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X1	2N410	1st Amplifier	DS-25	GE-1	2N410	PNP
X2	2N410	2nd Amplifier	DS-25	GE-1	2N410	PNP
X3	2N410	3rd Amplifier	DS-25	GE-1	2N410	PNP
X4	2N410	4th Amplifier	DS-25	GE-1	2N410	PNP
X5	2N406	Tint Up Relay Control	DS-26	GE-2	2N406	PNP
X6	2N406	Tint Down Relay Control	DS-26	GE-2	2N406	PNP
X7	2N406	Color Up Relay Control	DS-26	GE-2	2N406	PNP
X8	2N406	Color Down Relay Control	DS-26	GE-2	2N406	PNP
X9	2N406	Volume Up Relay Control	DS-26	GE-2	2N406	PNP
X10	2N406	Volume Down Relay Control	DS-26	GE-2	2N406	PNP
X11	2N406	Channel Selector Relay Cont.	DS-26	GE-2	2N406	PNP

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS				DIODES
			GENERAL ELECTRIC PART No.	MALLORY PART No.	RCA PART No.	SARKES TARZIAN PART No.	GENERAL ELECTRIC PART No.
X12	.001A	112016	1N1695 or GE-504	1N3070 or 1N3093	1N1763 or 1N2862	40H or F-4	
X13	.005A	112017	1N1692	1N3069 or 1N3092	1N2880	20H or F-2	

When replacing selenium rectifier with silicon type, add series resistance to obtain original output voltage.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	GENERAL ELECTRIC PART No.	GENERAL INSTRUMENT PART No.	MALLORY PART No.	SPRAGUE PART No.
C1A	100	30	112765	CRE623A	NLW100-25	MT1-30	MLV100-25	TT25X100	TE-1211
B	100	20	(973983-11)	CRE623A	NLW100-25	MT1-30	MLV100-25	TT25X100	TE-1211
C2A	10	25	112763	PRS2050	BBRD115	MT1-5	MLV10-25	TCD40	TVA-2210
B	10	35	(973983-9)			MT1-5	MLV10-25		
C3A	10	30	112764					TCT3109	
B	10	20	(973983-10)						
C	10	20							
C4A	10	30	112764					TCT3109	
B	10	20	(973983-10)						
C	10	20							

FIXED CAPACITORS

ITEM No.	RATING		REMARKS	REPLACEMENT DATA					
				AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.0047			BPD-0047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C6	.1	12V		TTD-1	UK20-104	H6		TA010	HY320
C7	.0047			BPD-0047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C8	.1	12V		TTD-1	UK20-104	H6		TA010	HY320
C9	.0047			BPD-0047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C10	.1	12V		TTD-1	UK20-104	H6		TA010	HY320
C11	.0047			BPD-0047	DD-472	BYA10D47	CCD-472	B247	5HK-D47
C12	.1	12V		TTD-1	UK20-104	H6		TA010	HY320
C13	.01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C14	680	100V 10%		ADM-19-681	CPR-680J	CD19F681K	DM-15-681K		MS-368
C15	680	100V 10%		ADM-19-681	CPR-680J	CD19F681K	DM-15-681K		MS-368
C16	680	100V 10%		ADM-19-681	CPR-680J	CD19F681K	DM-15-681K		MS-368
C17	680	100V 10%		ADM-19-681	CPR-680J	CD19F681K	DM-15-681K		MS-368
C18	680	100V 10%		ADM-19-681	CPR-680J	CD19F681K	DM-15-681K		MS-368
C19	680	100V 10%		ADM-19-681	CPR-680J	CD19F681K	DM-15-681K		MS-368
C20	680	100V 10%		ADM-19-681	CPR-680J	CD19F681K	DM-15-681K		MS-368
C21	.01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C22	.01			BPD-01	DD-103	BYA10S1	CCD-103	B110	5HK-S10
C23	180	5%		ADM-15-181	CPR-180J	CD15F181J	DM-10-181J		MS-318
C24	.1	50V		TTD-1	CK-104	H6		TA010	TG-P10
C25	6-21		#113740						
C26	6-21		#113740						
C27	33	5%		ADM-15-330	CPR-33J	CD15E330J	DM-10-330J		MS-433
C28	91	2%				CD15F910G	DM-10-910G		
C29	6-21		#113740						
C30	6-21		#113740						
C31	160	2%				CD15F161G	DM-10-161G		
C32	220	2%				CD15F221G	DM-10-220G		
C33	120	2%				CD15F121G	DM-10-121G		
C34	6-21		#113740						
C35	6-21		#113740						
C36	56	2%				CD15F560G	DM-19-560G		

RCA Victor Part Number

CONTROLS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	USE	RESISTANCE	REPLACEMENT DATA				
			RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.
R1	Sensitivity	68000	112014 (945364-3)				MTC682L1

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		RCA Victor PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L1	Bandpass	112770					
L2	Tint Control	112766					
L3	Tint Control	112765					
L4	Color Control	112767					
L5	Color Control	112767					
L6	Motor Control	112768					
L7	Motor Control	112768					
L8	Channel Selector	112769					

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	RCA Victor PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ .065A	225VAC @ .001A	12VAC @ .005A Tap @ 6.3VAC @ .15A	112940 (906138-502)					

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M1	Relay	112760	Tint Control "Up"
M2	Relay	112760	Tint Control "Down"
M3	Relay	112760	Color Control "Up"
M4	Relay	112760	Color Control "Down"
M5	Relay	112759	Volume Control "Up"
M6	Relay	112759	Volume Control "Down"
M7	Relay	112759	Channel Selector

TRANSMITTER

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	
X14	2N406	Oscillator	DS-26	GE-2	2N406	PNP

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		RCA Victor PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	WORKMAN PART No.	
L9	Remote Transmitter Osc.	112953					

BATTERIES

ITEM No.	VOLTAGE	RCA Victor PART No.	REPLACEMENT DATA			NOTES
			BURGESS	EVEREADY	MALLORY	
M8	9V		L6 or H126	206 or E126	M-1611 or TR-126	Mercury

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M9	Microphone Printed Circuit Board	112942A 113363	Complete, including components

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

ITEM	PART No.
Case - Transmitter, Bottom	113364
Case - Transmitter, Top	113365
Escutcheon - Transmitter, Top	112948
Button - Channel Selector	112947

ITEM	PART No.
Button - "Up" Control for Volume, Color, Tint	112954
Button - "Down" Control for Volume, Color, Tint	112955

ALIGNMENT INSTRUCTIONS

REMOTE CONTROL RECEIVER

Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8869 ... WALSCO #2543, 2544, 2588

A Transmitter known to be operating properly (preferably one checked for accuracy by a crystal standard) is used as a signal source. For each step depress the appropriate button and hold it down while adjusting receiver circuits. Connect common lead of VTVM to point ⏚. Maintain Transmitter at the distance which will provide -7 volt reading at each point.

	SIGNAL GENERATOR COUPLING	TRANS. FREQ.	FUNCTION	CONNECT VTVM	ADJUST	REMARKS
1.		35.0KC	Up Tint	DC probe to point ⑭.	A1	Adjust for maximum.
		36.5KC	Down Tint	DC probe to point ⑮.	A2	"
		38.0KC	Up Color	DC probe to point ⑯.	A3	"
		39.5KC	Down Color	DC probe to point ⑰.	A4	"
		41.0KC	Up Volume	DC probe to point ⑱.	A5	"
		42.5KC	Down Vol.	DC probe to point ⑲.	A6	"
		44.0KC	Chan. Sel.	DC probe to point ⑳.	A7	"

REMOTE CONTROL TRANSMITTER

Suggested Alignment Tools: A8 .....GENERAL CEMENT #8606, 8606L, 8869 ... WALSCO #2543, 2544, 2588
A9 thru A14 .GENERAL CEMENT #9087, 8290, 8868 ..... WALSCO #2525, 2528, 2587

A Transmitter known to be operating properly (preferably one that has been checked with a crystal standard) may be used as a signal source. Loosely couple the Transmitter which is adjusted to the Vertical Input of a Scope. Loosely couple the standard Transmitter to the Horizontal Input of Scope. Keep Transmitters at least 2 feet apart.

	SIGNAL GENERATOR COUPLING	TRANS. FREQ.	FUNCTION	CONNECT SCOPE	ADJUST	REMARKS
1.		35KC	Up Tint	See above Alignment Instructions.	A8	Adjust for zero beat indication.
		36.5KC	Down Tint	"	A9	"
		38KC	Up Color	"	A10	"
		39.5KC	Down Color	"	A11	"
		41.0KC	Up Volume	"	A12	"
		42.5KC	Down Vol.	"	A13	"
		44.0KC	Chan. Sel.	"	A14	"

CONCORD MODEL 1-611
BATTERY-LINE OPERATED

CONCORD MODEL 1-611
BATTERY-LINE OPERATED

CONCORD MODEL 1-611

TRADE NAME	Concord, Model 1-611
SUPPLIER	Concord Radio Corp., 901 W. Jackson Blvd., Chicago, Ill.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna
TUBES (SIX)	Types, 1A7GT Converter, 1N5GT 1st IF Amp., 1N5GT 2nd IF Amp., 1H5GT Det.-AVC-AF, 3Q5GT Power Output, 117Z6GT Rectifier.
POWER SUPPLY	105-120 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply
RATING	.19 Amp. @ 117 Volts AC or 46MA @ 9 Volts DC and 14.4MA @ 90 Volts DC
TUNING RANGE—BROADCAST	532-1700KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use battery power when available. If AC power is used, use an isolation transformer when available. If not, connect a .1 MFD capacitor in series with low side of the signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position, output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01 MFD	High side to rear stator of tuning cap. Low side to B-.	455KC	Tuning cap. fully open.	Across voice coil	A1,A2, A3,A4.	Adjust for maximum output. If AC power isused without an isolation transformer reduce dummy ant. to 200 MMF. to reduce hum modulation.
2		Loop	1700KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver . Adjust for maximum output.
3		"	1550KC	Tune for maximum output.	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis . . Indiana

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PARTS LIST AND DESCRIPTIONS

CONCORD MODEL 1-611

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CONCORD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
1	Converter		1A7GT	7Z	
2	1st IF Amp.		1N5GT	5Y	
3	2nd IF Amp.		1N5GT	5Y	
4	Det.-AVC-AF		1H5GT	5Z	
5	Power Output		3Q5GT	7AP	
6	Rectifier		117Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CONCORD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
7A	40	150		AF886D4A#	UP44315C#	DY-419#	EL443#	◓ Filter
B	40	150		PRS150-20	BR2015	M-20-150	UT201	■ "
C	40	150						▲ Filament Bypass Filter
D	20	150						
8	.1	400		484-.1	DT4P1	ST-4-1	TC-1	Line Filter
9	.2	200		484-.2	DT4P2	ST-4-2	72P3	Line Isolation
10	.002	600		684-002	DT6D2	ST-6-002	TC-22	Output Plate Bypass
11	.002	600		684-002	DT6D2	ST-6-002	TC-22	Audio Coupling
12	.01	600		684-01	DT6S1	ST-6-01	TC-11	" "
13	.01	600		684-01	DT6S1	ST-6-01	TC-11	Conv. Screen Bypass
14	.05	400		484-05	DT4S5	ST-4-05	TC-15	AVC Filter
15	.05	400		484-05	DT4S5	ST-4-05	TC-15	IF Grid Filter
16	.05	400		484-05	DT4S5	ST-4-05	TC-15	Filament Bypass
17	.05	400		484-05	DT4S5	ST-4-05	TC-15	" "
18	.05	400		484-05	DT4S5	ST-4-05	TC-15	" "
19	.2	400		484-.2	DT4P2	ST-4-2	TC-2	RF Bypass Power Supply
20	.05	400		484-05	DT4S5	ST-4-05	TC-15	AVC Filter
21	.05	400		484-05	DT4S5	ST-4-05	TC-15	AVC Filter-See Note
22	100	500		1468-0001	5W5T1	MO.5-31	1FM-31	AF Plate Bypass
23	100	500		1468-0001	5W5T1	MO.5-31	1FM-31	IF Coupling
24	100	500		1468-0001	5W5T1	MO.5-31	1FM-31	Osc. Grid Cap.

Note-Not used in all models.
#Omit bypass section.

CONTROLS

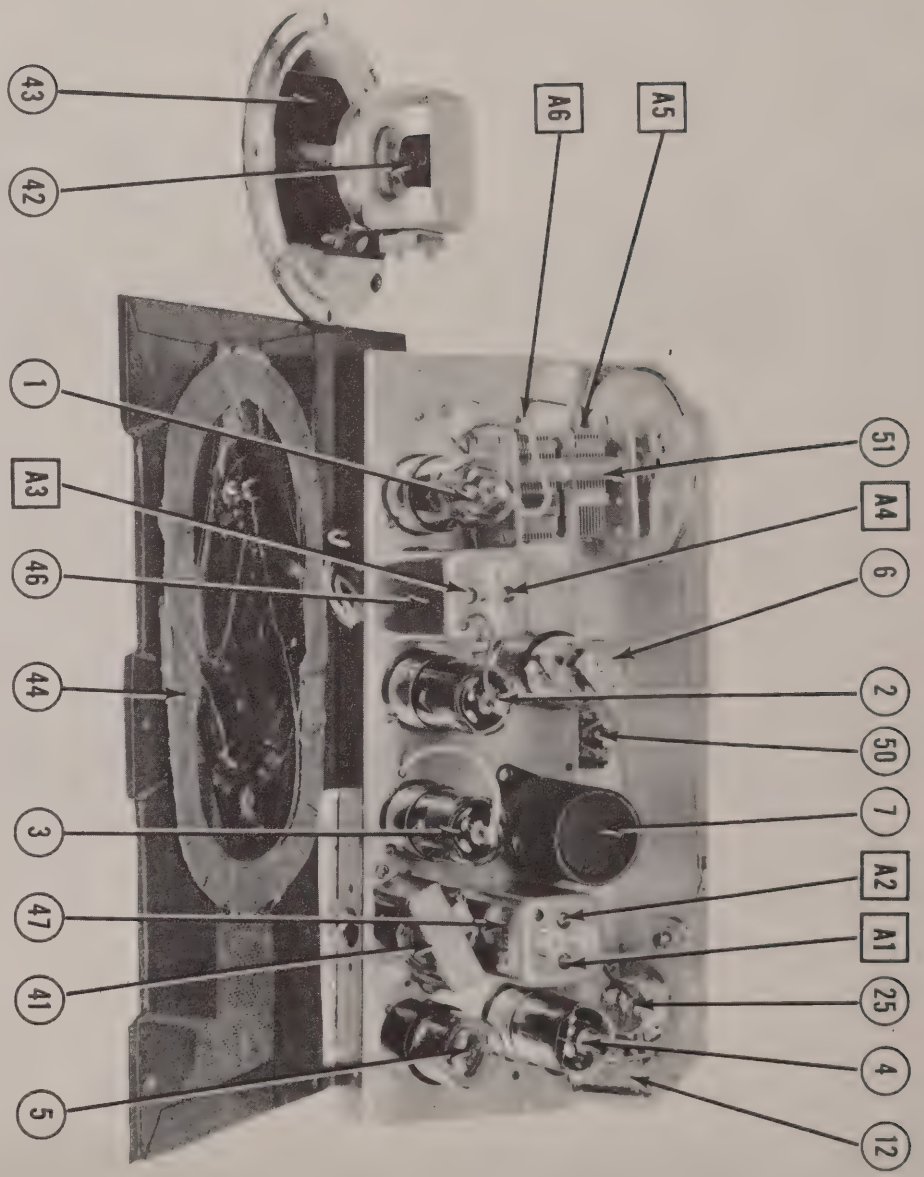
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONCORD PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
25A	500KΩ	½	RP5-2	D13-133	AM-60-Z	Volume Control
B	Shaft		Not Req.	E	KS8-3	Attach to 25A per instructions
C	Switch		" "	41	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CONCORD PART No.	IRC PART No.	IDENTIFICATION CODES
26	220KΩ	½		BTS-220K	Red-Red-Yl. Osc. Grid
27	47KΩ	½		BTS-47K	Yl.-Vi.-Or. Conv. Grid
28	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. AVC Network
29	2.2 Meg.	½		BTS-2.2 Meg.	Red-Red-Grn. " "
30	3.9 Meg.	½		BTS-3.9 Meg.	Or.-White-Grn." "
31	3.9 Meg.	½		BTS-3.9 Meg.	Or.-White-Grn. AF Grid
32	470KΩ	½		BTS-470K	Yl.-Vi.-Yl. AF Plate Load
33	1.2 Meg.	½		BTS-1.2 Meg.	Br.-Red-Grn. Output Grid
34	1000Ω	½		BTS-1000	Br.-Blk.-Red Fil. String
35	1000Ω	½		BTS-1000	Br.-Blk.-Red " "
36A	1200Ω	10		ABA-2500	Filament Dropping-See Note
B	1350Ω				" "
37	2200Ω	1		BTA-2200	Red-Red-Red Filter
38	15Ω	½			Br.-Grn.-Blk. Surge Limiter
39	8200Ω	½		BTS-8200	Gray-Red-Red 1st IF Plate Load
40	16KΩ	½		BTS-15K	Br.-Blue-Or. 2nd IF Grid

Note-On IRC replacement set slider 1350Ω from one end.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CONCORD PART No.	STANCOR PART No.	THORDAR'N PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
41	7000Ω	3.2Ω	460Ω	.44Ω	TA-7-1	A-3878	T22S47	A-2931	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			CONCORD PART No.	JENSEN PART No.	QUAM PART No.	
42	FIELD PM	VC IMP. 3.2Ω	EH6-3	ST-107 Mod. P5-V	5A15	
43	CONE DIA. 4"	VC DIA. 9/16"				

R F COILS

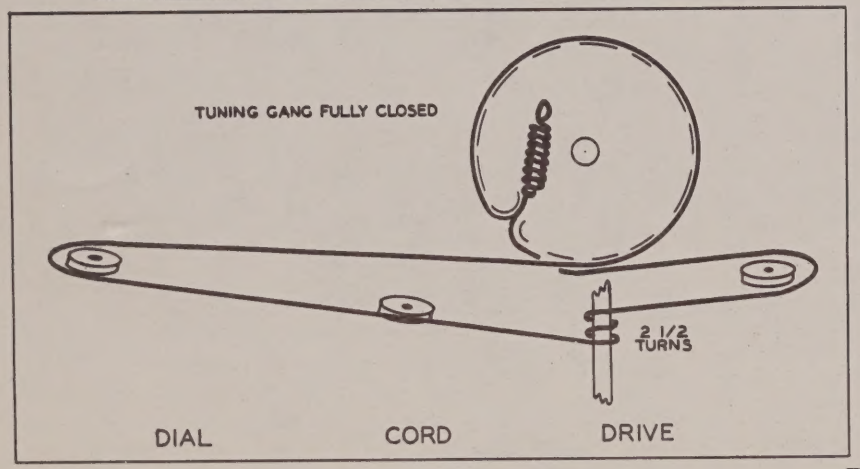
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	CONCORD PART No.	MEISSNER PART No.	
44	Loop Ant.		1.2Ω			
45	Osc. Coil	1.2Ω	5.7Ω		14-1060	
46	Input IF	11.2Ω	18.6Ω		16-5712	
47	Output IF	14.3Ω			16-6670	

BATTERIES

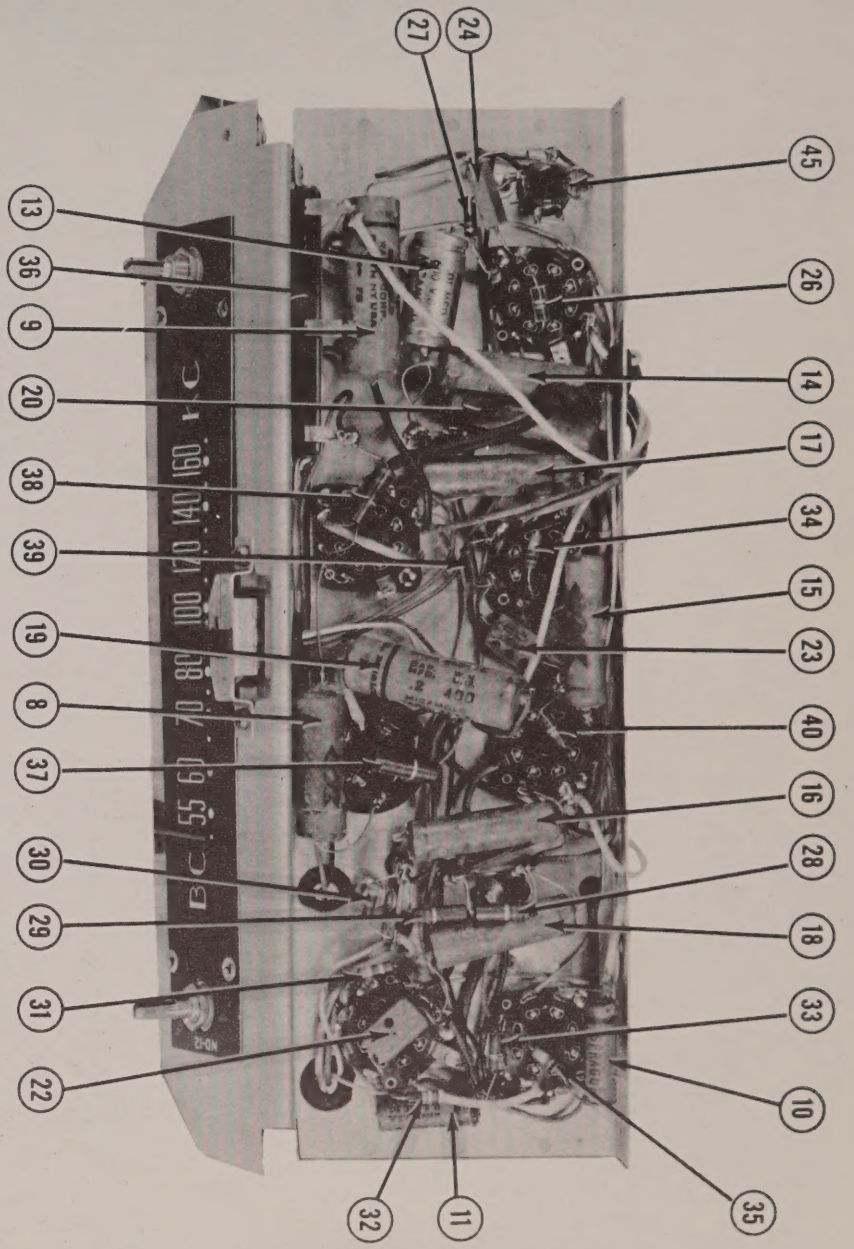
ITEM No.	VOLTAGE	CONCORD PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
48	9V "A"		#746			G3			2 Used in Series
49	90V "B"			482			M30		" " " "

MISCELLANEOUS

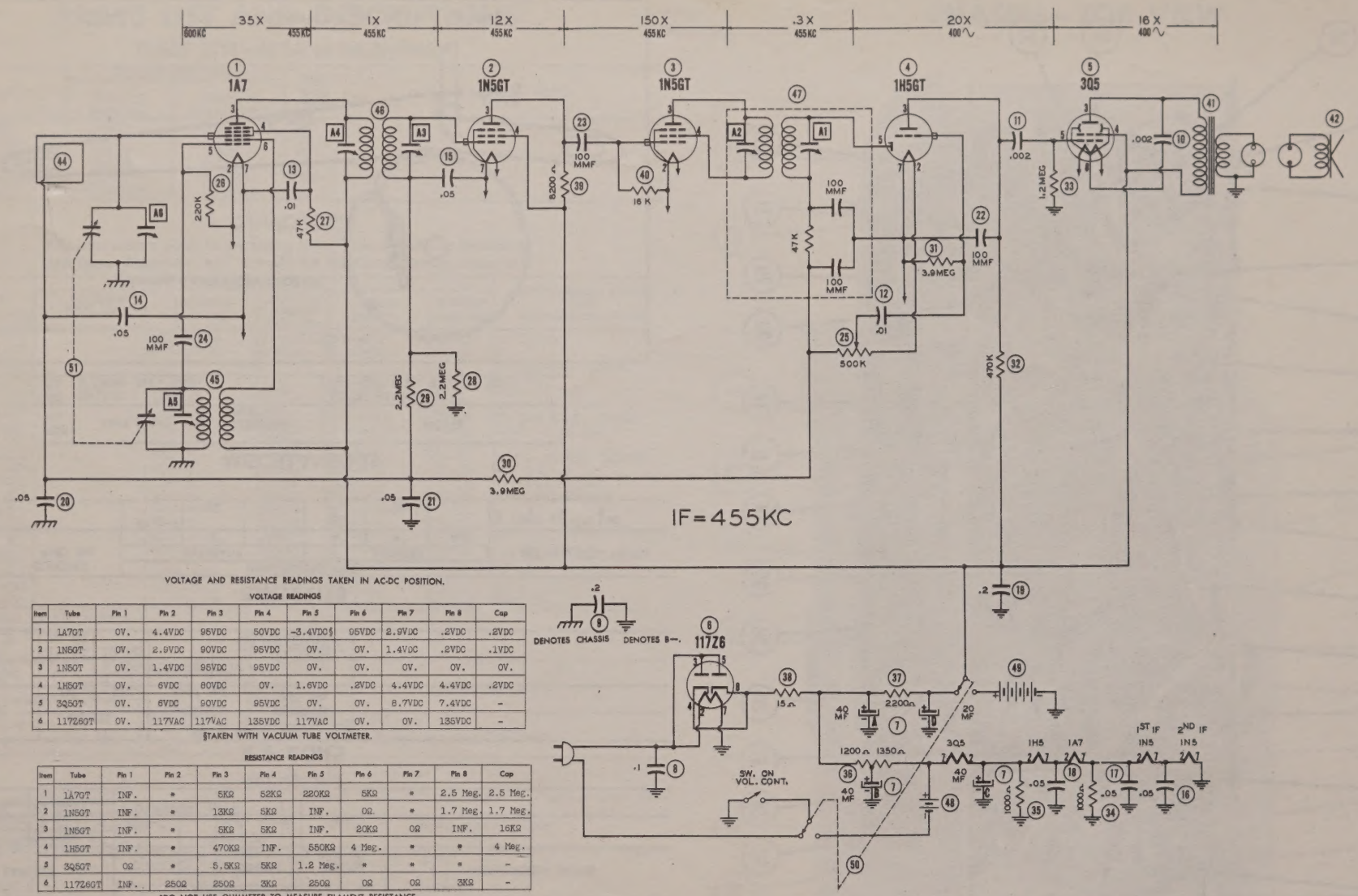
ITEM No.	PART NAME	CONCORD PART No.	NOTES
50	Switch		AC/DC Battery
51	2 Gang Var. Cap.		(25-457 MMF, 25-190 MMF)



CHASSIS—BOTTOM VIEW



CONCORD MODEL 1-611



VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	0V.	4.4VDC	95VDC	50VDC	-3.4VDC§	95VDC	2.9VDC	.2VDC	.2VDC
2	1N5GT	0V.	2.9VDC	90VDC	95VDC	0V.	0V.	1.4VDC	.2VDC	.1VDC
3	1N5GT	0V.	1.4VDC	95VDC	95VDC	0V.	0V.	0V.	0V.	0V.
4	1H5GT	0V.	6VDC	80VDC	0V.	1.6VDC	.2VDC	4.4VDC	4.4VDC	.2VDC
5	3Q5GT	0V.	6VDC	90VDC	95VDC	0V.	0V.	8.7VDC	7.4VDC	-
6	117Z6GT	0V.	117VAC	117VAC	135VDC	117VAC	0V.	0V.	135VDC	-

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Cap
1	1A7GT	INF.	*	5KΩ	52KΩ	220KΩ	5KΩ	*	2.5 Meg.	2.5 Meg.
2	1N5GT	INF.	*	13KΩ	5KΩ	INF.	0Ω	*	1.7 Meg.	1.7 Meg.
3	1N5GT	INF.	*	5KΩ	5KΩ	INF.	20KΩ	0Ω	INF.	16KΩ
4	1H5GT	INF.	*	470KΩ	INF.	550KΩ	4 Meg.	*	*	4 Meg.
5	3Q5GT	0Ω	*	5.5KΩ	5KΩ	1.2 Meg.	*	*	*	-
6	117Z6GT	INF.	250Ω	250Ω	3KΩ	250Ω	0Ω	0Ω	3KΩ	-

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting across volume control.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - Volume control at maximum, no signal applied for voltage measurements.